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Regulation

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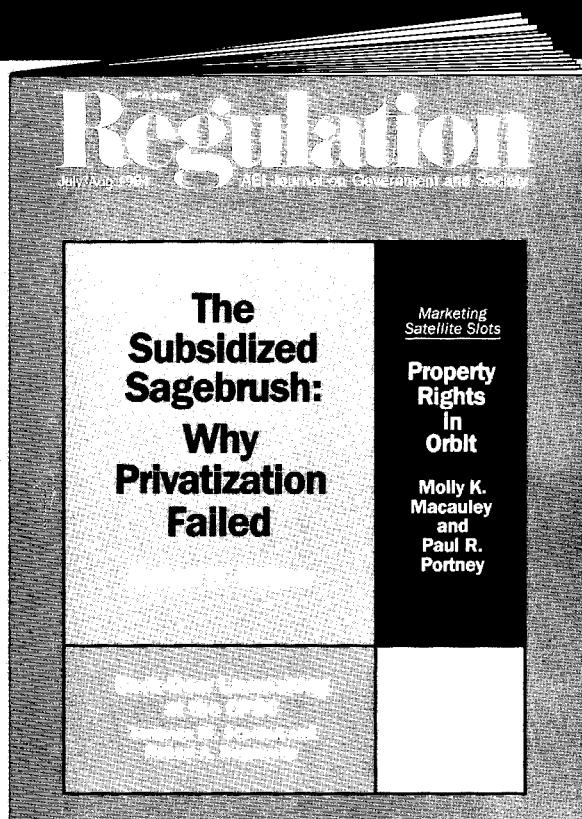
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Letters

We welcome letters from readers, particularly commentaries that reflect upon or take issue with material we have published. The writer's name, affiliation, address, and telephone number should be included. Because of space limitations, letters are subject to abridgment.

The Adams Family of Lawsuits

TO THE EDITOR:

As a polemicist playing patty-cake with the segregation of our public schools, assistant professor Jeremy Rabkin ("Captive of the Court: A Federal Agency in Receivership," *Regulation*, May/June 1984) may get by, but for scholarship on the subject he gets an F.

Rabkin complains that the *Adams* case is an effort to make the government do its job. But he hides from the reader why this 1970 suit was necessary, namely, that back in July 1969, Attorney General John Mitchell and HEW Secretary Robert Finch publicly renounced the use of Title VI of the 1964 Civil Rights Act as a remedy for segregation even though it had proven to be the single most effective means of obtaining prompt desegregation.

Rabkin complains also that the suit has continued for many years. But he hides from the reader the reason why the suit has had to go on right up to the present, namely, that Education Secretary Terrel Bell bluntly says, referring to Title VI, "It seems that we have some laws that we should not have, and my obligation to enforce them is against my own philosophy."

Rabkin gives the show away when he says that Kenneth Adams should have sued his own school district to redress the segregation. For Title VI was passed for the express purpose of providing a "wholesale" effective method for enforcing the Constitution through the government agencies involved, in place of "retail" drawn-out individual suits against the segregating recipients

of federal funds. This latter option was there before 1964; Rabkin in effect repeals Title VI.

While Rabkin's inexperience may explain his lack of scholarship, it hardly excuses dissemination of it by an ostensibly scholarly journal.

Joseph L. Rauh, Jr.
Rauh, Silard and Lichtman,
Washington, D.C.

TO THE EDITOR:

Important questions involving the separation of powers and checks and balances of our federal system inhere in the *Adams* litigation, but Jeremy Rabkin's angry and inaccurate account has not discovered them.

The fundamental issue may be illustrated by a hypothetical case. Suppose the Food and Drug Administration announced one day that it was ceasing all enforcement activity with respect to drugs used to combat a particular disease, despite the widely held belief that some of the drugs already on the market were dangerous. Suppose further that Congress, while continuing on the books the law that gave the FDA clear responsibility to deal with the matter, did not do anything to bring the agency to account for its abdication of duty. Would a federal court, in response to a suit brought by individuals who needed treatment for the disease, be justified in requiring the agency to perform its statutory mandate? If so, should the remedy be available only to the particular individuals who brought the suit or to all who might be harmed?

A reasonable answer to these questions is that a federal court, having power under the Constitution to adjudicate all cases arising under federal law (including controversies to which the U.S. government is a party), should intervene and that the enforcement remedy should benefit not just the parties who brought the suit but all who may suffer from the agency's continued failure to enforce the law. That, of course, is what happened in the *Adams* suit, which

was precipitated by a 1969 declaration (which Rabkin conspicuously fails to note) by high Nixon administration officials that HEW would no longer perform its duty under the law to end subsidies to illegally segregated school systems.

It would also be reasonable to conclude that a court, in providing a remedy, should do no more than what is required to correct the violation of law and should avoid becoming unnecessarily entangled in the management and decision-making processes of the agency. The *Adams* case has been marked by such judicial restraint, as witness Rabkin's concession that neither the plaintiffs nor the court has sought to police the many "indulgent" settlements that HEW entered into after being required to enforce the law.

Rabkin wonders why respected legal scholars have "nodded in approval at the *Adams* litigation," while he alone views it as a "constitutional monstrosity." The answer is not difficult. Scholars have viewed the case dispassionately as exemplifying a serious search for the proper allocation of federal authority. In contrast, Rabkin's "analysis" is governed by his active dislike of the Supreme Court's decision in *Brown v. Board of Education* (a decision he sarcastically described in recent congressional testimony as part of the "sacred canon"), his strong distaste for the remedies that the Court has held are necessary to redress illegal racial segregation, and his unreasoning hatred of other civil rights laws such as the ban on discrimination against disabled people in federally funded programs (although Rabkin airily acknowledged in the same testimony that "it is certainly not nice to abuse people who have physical handicaps").

Rabkin is entitled to his views, but in the interest of fairness and accuracy he should acknowledge that his real quarrel is not with Judge Pratt and Joe Rauh alone, but with the Constitution, the Supreme Court, the Congress, and every President from Franklin Roosevelt through Jimmy Carter.

William L. Taylor,
Center for National Policy Review,
Catholic University

JEREMY RABKIN responds:

Some readers of my article on the *Adams* litigation may well have wondered how the extraordinary pretensions of the lawyers involved could have received so little chal-

lence or scrutiny over the past fifteen years. The letters here from Joseph Rauh and William Taylor go far in answering that question. As they demonstrate, anyone who challenges such activity must be prepared to face a barrage of epithets and innuendos, suggesting that the critic is some sort of racist or at least a wild-eyed fanatic. This is, of course, the same tactic civil rights activists have been employing for years to intimidate critics of quota schemes and busing experiments with school children. Fortunately, such tactics have, through sheer overuse, now lost much of the sting they once had.

When not engaging in *ad hominem* invective, both letters seem to me to confirm the principal points in my article. Both Rauh and Taylor make much of the 1969 statement by John Mitchell and Robert Finch that the Nixon administration would rely on court action rather than funding termination to enforce Title VI. The fact is that Title VI does not require enforcement by funding termination, so the Mitchell-Finch statement was in no way tantamount to a refusal to enforce the law. Indeed, as I pointed out in the article, the Nixon administration achieved more dramatic progress in desegregation in the three years following this policy statement than has ever been achieved by OCR before or since. Yet Rauh and Taylor repeatedly imply that the alternative to *Adams* was complete non-enforcement; telling Kenneth Adams to sue his own school district, Rauh says, "in effect repeals Title VI."

Why did the litigation have to drag on long after the Nixon administration left office? Rauh provides a retrospective justification: continuing the suit gave him a chance, ten years later, to challenge the enforcement policies of Terrel Bell, who (Rauh broadly hints) opposes the Civil Rights Act of 1964 and thus cannot be trusted to run the department he was appointed to run. Of course, this innuendo about Secretary Bell's views is quite unsupportable, a charge that might be considered libelous were it not so patently ludicrous. Yet even this preposterous charge against a Reagan appointee does not explain why Rauh thought it necessary in the intervening years to sue President Ford's appointees and then sue Joseph Califano, Pat Harris, and Shirley Hufstедler, each in turn, during the

Carter administration, on the same claim of inadequate enforcement of Title VI. Were all of these well-known figures closet racists as well, Mr. Rauh? Or was their fault simply that they were not in complete agreement with Joseph Rauh on how to run the federal agency assigned to their care by successive presidents?

Regarding Taylor's hypothetical example of nonenforcement by the FDA, I must first repeat that complete refusal to enforce is not what we are talking about in *Adams*. And I doubt that Taylor's hypothetical case, taken literally, has any bearing on real-world disputes. It is quite difficult to conceive of a circumstance in which the FDA would proclaim a policy of total nonenforcement and find Congress responding with a shrug of indifference, as Taylor posits. It is true that the FDA has frequently decided to permit particular drugs to stay on the market when public interest groups have urged that they be recalled. I am aware of several suits growing out of such disputes and I am not aware of any in which the public interest groups have prevailed. Nor can I conceive of a situation in which a judge would be justified in directing the FDA on its affirmative regulatory duties at the behest of a private citizen. The one case that fits this description, *American Public Health Association v. Veneman*, seems to me a clear instance of indefensible judicial activism.

I might add that the D.C. Court of Appeals itself now seems to be coming around to this view. In September it remanded an appeal in one part of *Adams* to Judge Pratt and directed him to determine how the "plaintiffs" in the case could possibly have standing to maintain this extraordinary suit. To paraphrase Taylor, it is becoming evident that his quarrel is not with me but with the D.C. Court of Appeals—and more generally with the U.S. Congress, which left these civil rights laws under the care of an executive agency, and with the U.S. Constitution, which leaves executive agencies under the care of the President and his appointees.

Taxi Reform at the FTC

TO THE EDITOR:

Since I am an admirer of Edmund Kitch's seminal study of Chicago taxicab regulation, my initial reaction to the Federal Trade Com-

mission's recent challenge of anti-competitive taxi restrictions in Minneapolis and New Orleans was to applaud. As Kitch's essay in your May/June issue makes clear, the costs of these restraints on trade are substantial and unnecessary ("Taxi Reform—The FTC Can Hack It," *Regulation*). Fewer cabs are available to serve customers, cab drivers and owners earn monopoly profits at customer expense, and riders are forced to use more expensive or less desirable options. It seemed that the commission, long known for wasting its antitrust enforcement money on trivial or harmful pursuits, was finally tackling a worthwhile project. However, a closer examination raises serious questions as to whether the FTC complaints are a good idea. . . .

The commission properly does not argue that all regulation is inappropriate. It simply charges that the cities have gone too far in limiting the number of cabs and fixing prices. Nonetheless, the cities can counter that their regulations serve other important public interests such as ensuring adequate driver training and integrity, protecting consumers from price gouging (particularly at airports and in the inner city), and controlling auto congestion. A lower-priced ride that takes longer may be the market's but not necessarily the community's most desired solution.

The cities should be free to balance these interests against the benefits of competition in deciding how far regulation should go. Until now, antitrust agencies and the courts have been reluctant to interfere with such balancing except in egregious situations—usually where the regulation is imposed by private groups.

These questions also suggest we ought to have greater respect for the principles of federalism and local autonomy than Kitch offers. He does not show, for example, that the citizens of Minneapolis or New Orleans have not made a reasoned or at least deliberate choice. So long as no barrier prevents the proponents of deregulation from making their case in those cities, we owe great respect to the legislative choices of their city councils, which may have been unpersuaded by the modest results of the Seattle experiment in taxi deregulation.

It seems particularly inappropriate for a federal agency without expertise in local transportation issues to be intervening here, since there is no special national issue or
(Continues on page 80)

Perspectives

on current developments

“Heavy Landing” for Canadair: A Tale of Industrial Policy

At Britain’s Farnborough air show this fall, a Canadian-made De Havilland “Buffalo” pulled lazily out of a tight turn, pitched suddenly forward and, to the horror of onlookers, slammed into the tarmac, bursting into flame. Luckily, the crew managed to escape unharmed. In the end, what was most memorable about the crash was the official British commentator’s description of it as a “heavy landing.” To many Canadian observers, the incident seemed the perfect metaphor for their government’s involvement in the aerospace industry, which, in recent years, has been characterized by one nonfatal disaster after another—most of them financial, all of them swaddled in official euphemism.

The Canadian aerospace industry is probably best known to Americans for the \$100 million extendible arm (the “Canadarm”) that Spar-Aerospace Ltd. built for the space shuttle. Although the Canadarm was heavily subsidized—the Canadian government presented the first one to NASA free of charge—it at least satisfied a perceptible demand. By contrast, the Canadian government’s two other major forays into the aerospace business have resulted in products that, judging by their sales, nobody seems to want. In the last eight years, two state-owned firms, Canadair Ltd. of Montreal and De Havilland Ltd. of Toronto, have between them consumed more than \$2 billion in public money.

The biggest money-sink has been Canadair, which produces “executive” jets and also does contract work for several major U.S. aerospace firms. Canadair is no stranger to the public sector: founded privately in 1921, it was nationalized during World War II and then denationalized in 1947. In 1976 it was again taken over by the state, after its American owner, General Dynamics, decided to liquidate the

company and no private Canadian buyer could be found. (Canadair’s subcontracting business had been declining since the early 1970s, with the drop in defense spending both at home and in the United States.) The government’s stated objectives in buying the firm were (1) to maintain a Canadian presence in the aerospace industry, (2) to preserve and create high-tech employment, and (3) to stimulate high-tech exports.

These rationales for government intervention are familiar enough to students of “industrial policy” (though, of course, most economists would argue that policy should aim instead at encouraging the use of resources where they will earn the highest returns). In Canada, however, arguments for intervention usually fall on more sympathetic ears than in this country. One reason is many Canadians’ belief that a major difference between the two countries is that Canadians are less afraid of intervention than Americans are. One not atypical popularizer of Canadian history writes that his countrymen are distinguished from Americans by their “respect for authority . . . hunger for security . . . yearning for peace, order, and good, strong government,” and so forth. Thus, many Canadians regard the 300 or so federal and provincial “crown corporations” as expressions of national identity, while Canada’s perpetual insecurity about U.S. cultural and economic domination encourages what has become almost instinctive protectionism. (See Readings, page 72.)

Soon after the bailout, Canadair’s management approached its new owner, the federal minister of industry, trade and commerce, with an ambitious plan to change the company’s mission. Hitherto most of Canadair’s business involved subcontracting on U.S. airliners and military planes. Now it proposed to enter the executive-jet market with its own super-quiet, fuel-efficient wide-body plane. The development costs of this “Challenger,” as the plane was to

be called, were projected at a modest \$106 million; the government would have to fork over, at most, \$128 million, on top of the \$47 million it had paid for the company. It would take just thirty months, Canadair said, to get from design to first sales—just half the industry rule of thumb of five years.

In retrospect, these estimates were spectacularly optimistic. The first Challengers were delivered in 1981, more than two years late; development costs ended up at \$460 million; and the government's cumulative contribution was a whopping \$1.5 billion. Hindsight is always perfect, of course, but even at the time a more sophisticated shareholder than the government almost certainly would have seen that the odds against the scheme were unrealistically high. The plane was an entirely new design, and the company had never before been involved in such a complex drawing-board to runway project. By the mid-1970s its engineering division had declined to 135 employees, which by industry standards is less than a bare-bones operation. A maxim in the industry holds that to develop a new plane is to bet the company; in 1976 Canadair hardly had a company to bet. But the government approved and the project was launched.

Problems arose at virtually every stage of development. The largest subcontractor failed to deliver the plane's engines on time, which prompted Canadair to file a \$100 million lawsuit against it and switch suppliers. The first "600" model of the Challenger failed to meet its promised performance specifications. (The engineers finally succeeded with a later model, the "601," which came on line in 1983.) Once the Challenger did become available, there were further delays in getting it certified for airworthiness. And in 1981, just as production models were finally ready to roll out in earnest, the recession hit, and the executive-jet industry went into a nose dive. (The industry is particularly susceptible to economic downturns: the best predictor of sales is U.S. corporate profits. Yet Canadair was slow to recognize the recession for what it was. As late as June 1981 the company was revising its sales projections upward, even though it had received no new orders for two years.)

These delays were costly in several ways. The company had to finance large inventories by borrowing at very high real interest rates.

And one of the Challenger's major distributors sued Canadair for the financial losses it suffered as a result of the delay, a suit that culminated in an out-of-court settlement whose terms remain secret.

Accounts of the Canadair of the late 1970s give the clear impression that no one or, perhaps worse, too many people were in charge. At the peak of the Challenger program Canadair's 6,000 employees included no fewer than twenty-two vice-presidents, with another five in its U.S. marketing operation. One year the company sent thirty people to the Paris air show. Yet in 1982 the office of the internal auditor listed only one employee.

Many of the company's other practices were also dubious. Canadair went to great lengths to show full order books. Federal Express of Atlanta was able to book twenty-five planes on the strength of a \$250,000 deposit. In at least three cases planes were sold to customers and then immediately leased back by Canadair. And there were other instances of what could safely be characterized as unusual business practices. At one stage, incredibly, several Canadair executives got into the business, aside from their normal duties, of leasing Cessnas to the company for use by its executives.

Although its negative cash flow was enormous, until 1982 Canadair persisted in reporting operating profits. This was the (presumably intended) result of management's extremely aggressive accounting methods, which allowed capitalization of even the softest development costs. The original sales projections for the Challenger turned out to be hopelessly optimistic, of course. Whereas the prospectus called for completion of design by the end of 1976 and first deliveries by late 1978, the first production models were not shipped until 1981, three years late. Thus, while Canadair planned on having delivered a total of 150 planes by mid-1982, only 54 sales had been completed by then.

By 1981 Canadair's financial hemorrhage had become so acute that the government was forced to act. It set a ceiling of \$1.35 billion on guaranteed loans (which by this time were the only kind of loan Canadair could get). Then in late 1982, as sales continued to decline, it directed the Canada Development Investment Corporation (CDIC), a government holding company, to take over.

Where had Canadair's directors been during the debacle? According to a parliamentary committee that recently reported on the Challenger, the directors had trouble getting clear in their own minds whether the program's goal was to make money or to provide some other sort of benefit to the country. They also tended to defer to the government representative on the board, whose dual role, as the parliamentary committee pointed out, could be subject to serious conflicts of interest.

For its part, the federal government seems to have exercised only the most tenuous control over Canadair, apparently content to regard the funds the company was soaking up as the price that had to be paid for a Canadian presence in this high-tech industry. In 1979 the Treasury Board, Canada's equivalent of the U.S. Office of Management and Budget, issued a report criticizing Canadair's sales projections, but with no perceptible effect on its behavior or, it would seem, the government's. The auditor-general of Canada, Kenneth Dye, repeatedly complained about the company's failure to provide Parliament or the public with financial statements (although, in fact, crown corporations are not required to do so under the applicable law). But because the government was guaranteeing Canadair's borrowing with "letters of comfort," which can be granted by the cabinet, there was no occasion for a specific parliamentary appropriation or, more important, for any public scrutiny of the company's books.

Having stepped in to pick up the pieces, CDIC was forced to make drastic cuts. It reorganized the company, cutting the overall work force by 25 percent and reducing the number of vice-presidents to twelve. It commissioned two outside firms to forecast the demand for Challengers and adopted the most conservative of their sales forecasts—fifteen planes a year. It assumed Canadair's debt, a move that should help persuade potential customers the company will be around in the future—always a big problem for a failing enterprise. Most important, it bit the financial bullet and wrote off \$1.1 billion of development costs it judged could never be recovered—the largest corporate write-off in Canadian history.

As a result of these changes, it appears the new Canadair can at least hope to cover the out-of-pocket costs of building planes, although it

obviously can never hope to recoup more than a small fraction of the Challenger's development costs. But generating a positive cash flow may not be enough to keep the company afloat. CDIC has consistently argued that, to be a serious force in their industry, aircraft companies must be prepared to produce several generations of a given model—something Canadair has not committed itself to do. In fact, about the only promise the company has made is that from here on out all investments are to be evaluated and financed on what amounts to a commercial basis: the government will not be asked to fork over more equity financing, though Canadair has not ruled out further borrowings. Of course, if Canadair is to be operated on a commercial basis, an obvious question is why the company belongs in the public sector at all. In fact, there is talk in Ottawa that several commercially oriented crown corporations, including Canadair, are slated for "privatization" by the new Progressive Conservative government.

Some Canadair supporters are unrepentant. The former president of the company, who was relieved of his duties in CDIC's reorganization, argues that the lost \$1.1 billion was well spent. Other witnesses have told the parliamentary oversight committee that research and development create spillover benefits that justify government support—though these benefits are seldom described in any detail. (Whether such hypothetical spillovers remain in Canada—given that most of Canadair's customers and many of its suppliers are foreign—is an open question.) Others say that, after all, other countries subsidize aerospace development by way of defense spending. (Canada does not have much of a defense aerospace program to spin off such by-products.)

There clearly are chastening lessons in the Canadair experience for advocates of "industrial policy," that new cure-all for the economic problems of the 1980s. Not all government enterprises perform as badly as Canadair did, of course. But it takes only one or two Canadairs to offset any gains that a "picking-winners" strategy may create. The Canadair experience also shows that governments are no better equipped than anyone else to judge the likely success of investment projects—and may be worse. They certainly are more likely to ignore the bottom line on a losing project, especially

if giving up would mean firing constituents whom they encouraged to move or acquire new skills in the first place.

In this respect, the new Progressive Conservative movement may not be much different from its predecessors. It would dearly love to consolidate the dramatic political gains it made in the politically crucial province of Quebec in last September's federal election, and, in fact, one of its first acts in office was to offer a \$15 million bailout to a failing Montreal petrochemical firm. Since most of Canadair's employees live in Quebec it is unlikely that the new government, whose minister of finance condemned the Challenger project as ill-advised while in opposition, will withdraw financial assistance even if Canadair is returned to private ownership.

Can Regulation Sweeten the Automotive Lemon?

More than a few consumers have been soured, at one time or another, by the automotive lemon. Legislators and regulators pay close heed to these consumer experiences. Thirty-three states now enforce lemon laws, which typically require dealers to buy back (at a discount) new cars with defects that cannot be fixed within prescribed deadlines and standards.

The federal government's involvement with lemons has been largely confined to the other side of the auto market, the used-car business. In 1981 the Federal Trade Commission promulgated a rule requiring (among other things) that used-car dealers disclose a car's known defects on a window sticker. The rule has had a tortuous history. Congress legislatively "vetoed" it in May 1982, bowing to vigorous opposition from automobile and trade associations. The legislative veto was itself declared unconstitutional by the Supreme Court in June 1983, and a few months later the disclosure rule (which had also been challenged in court on its merits) was remanded to the FTC with its acquiescence for further consideration. Last July, the FTC, by a narrow 3-2 vote, tentatively struck the defect disclosure clause—concluding that it would be ineffective and might even mislead some consumers—and enacted the remainder of the rule once again.

The commission's decision remains highly controversial; attorneys general from forty-one states filed comments supporting the known defects disclosure provision. The FTC, however, can cite new evidence for its decision, in the form of research conducted by Michael Pratt and George Hoffer of Virginia Commonwealth University on the state experience with used-car defect disclosure laws. Pratt and Hoffer's research suggests that there are in fact a disproportionate number of lemons in the used-car market. But they reach the conclusion, not unfamiliar in public policy experience, that none of the regulatory responses appear to do consumers much good.

The case for the "known defects" rule turns on three questions. Is there a problem that the market alone cannot solve? If so, what can regulators do about it? And will their response work?

Both intuition and empirical data suggest that the used-car market attracts lemons. The intuitive argument is straightforward enough; it derives from the asymmetry of information between buyers and sellers. There is often no exterior difference between a "lemon" and an above-average car—what some owners call a "creampuff"—and even if a used-car dealer can tell the difference, most buyers cannot. Thus buyers, including dealers, will tend to offer similar prices for each. But sellers, faced with a less-than-appropriate price gap between lemons and creampuffs, will tend to dump the former and hold on to the latter.

The process feeds on itself, since buyers, aware that the used-car market attracts lemons, discount their bids accordingly, leading sellers to withhold even more average-to-good cars from the market. To compound the problem, of course, sellers can engage in deceptive practices to "doctor" the appearance of used cars—which in the long run causes buyers to discount their bids even further. In a market in which sellers have more information about product quality than buyers, then, bad goods will tend to drive out good. Note that the for-sale-by-owner market for used cars is just as susceptible to the problem as the dealership market.

A number of market mechanisms serve to alleviate these problems. The most visible solutions take the form of dealer guarantees and warranties, which recently have been beefed

up with extended coverage backed by national insurers. Indirectly, dealers invest in brand-name maintenance (local television ads, for instance), which makes it more costly for them to renege on a reputation for quality. The reputation of the parent automakers is also laid on the line. All four domestic car manufacturers have certified the quality of the better used cars sold by their dealers. Two generations of Chevrolet dealers, for example, have designated better used cars with an "OK" stamp of the dealer's confidence in the car's marketability.

Despite these measures, the most widespread view is that the used-car market remains lemon-dominated nevertheless. The available empirical evidence, it should be noted, is not free from doubt. The economists who have examined the market for used pickup trucks, which tends to resemble the used-car market, have come to opposite sets of conclusions. Eric Bond, writing in the *American Economic Review* in September 1982, studies census data on pickup truck maintenance records and concluded that there was no significant difference in maintenance problems for trucks of a given age between those still held by the original buyer and those bought used. In the same journal, however (September 1984), using the same census data with a different definition of the used-car market, Pratt and Hoffer reached the opposite conclusion. They found that a pickup truck bought used is more likely to be a lemon than one of the same age still in the hands of the original owner.

It is worth noting that we would still expect to see the used-car market attract more than its share of lemons even in the happy event that warranties and brand names fully compensated for buyers' lack of information. The reason is that not all customers are equally lemon-averse. Perhaps no one positively prefers to drive a lemon, but some people feel much more strongly than others. The sort of owner that is peculiarly lemon-averse may be mechanically inept, tied to a punctual schedule that is ruined by automotive breakdown, and far too busy to spend time in repair shops. The opposite sort of car owner might be a student or retiree, perhaps in a family for which the lemon is a second car, who knowingly buys the lemon (for a suitably low price) on the assumption that he can handle it. Such buyers, it is not implausible to assume, tend to congregate in the used-car

market. The optimal function of a lemon-dominated market would be to transfer cars from the first sort of driver to the second sort.

Some state regulators apparently believe, however, that the lemon phenomenon arises less from the consumer preference factor than from the informational asymmetry factor—and that the asymmetry is one that can be rectified. The ways they regulate used-car quality vary, with several degrees of stringency. Wisconsin is an example of strict regulation. Since 1974 it has enforced a law, much like the original FTC proposal, that requires used-car dealers to inform retail customers about significant existing mechanical and structural defects or damages ascertainable through a dealer's test drive, walk-around inspection, and under-the-hood inspection. In 1983 a requirement was added that the notice be placed on a car window placard that the customer ultimately signs.

Other states have less stringent laws. More and more states are requiring certification of odometer mileage. Iowa and several other states require safety inspection when a car's registration is about to change hands. Some states dictate only that information about prior police and taxi use of the used car be revealed. And yet others, like Minnesota, have no vehicle inspection or disclosure requirements of any kind. Dealers may be bound by express warranties, or implied warranties defined by the Uniform Commercial Code, or they may simply offer to sell a car "as is."

Do the more stringent state laws provide a cost-effective way to generate information for used-car buyers? Pratt and Hoffer's analysis suggests that the answer is no.

If disclosure laws accomplish their intended purpose, they should widen the resale price gap between lemons and creampuffs so that first owners of cars will find it advantageous to unload fewer of the former and keep fewer of the latter. The mix of cars sold in the used-car market should then begin more to resemble the mix in the new-car market (not completely, since new-car buyers may remain more "lemon-averse" than used-car buyers).

An incidental effect should be that more of the buyers of lemons are the appropriate buyers who like lemons (because they are cheap) and know what they are getting. But—of most relevance here—buyers of used cars should, on average, spend significantly less on repair and

In Brief-

Knowledge of the Law Is No Excuse. The Karen Silkwood memorial award for 1984 must surely go to the D.C. Circuit Court of Appeals for its opinion in *Ferebee v. Chevron Chemical Co.* Richard Ferebee contracted pulmonary fibrosis, allegedly from exposure to paraquat, a herbicide distributed by Chevron. Ferebee's estate recovered damages under Maryland state law, on the theory that Chevron had not adequately warned of the risk on the label affixed to paraquat containers. Quite proper, said Judge Abner Mikva.

But wait. Under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) the Environmental Protection Agency regulates the labeling of paraquat in minute detail. "After extensive scientific testimony," Mikva conceded, EPA had approved the sale of paraquat with the label at issue in Ferebee's case. Furthermore, FIFRA forbids manufacturers from using any different label without EPA approval. Even Maryland itself could not have ordered Chevron to do so: FIFRA expressly provides that a state "shall not impose or continue in effect any requirements for labeling

... in addition to or different from those required" by EPA.

No problem, for Judge Mikva at least. "[I]t need not be the case ... that [Chevron] can be held liable for failure to warn only if the company could actually have altered its warning." He pointed out helpfully that "Chevron can comply with both federal and state law by continuing to use the EPA-approved label and by simultaneously paying damages to successful tort plaintiffs" who claim that the label is inadequate. "Successful actions of this sort may lead manufacturers to petition EPA to allow more detailed labeling of their products; alternatively, EPA itself may decide that revised labels are required in light of the new information that has been brought to its attention through common law suits." The Supreme Court has denied review.

Imperfect Recall. Also from the D.C. Circuit Court of Appeals is this regulatory vignette. A line of General Motors' 1979 engines was found to exceed EPA's emissions standards. Recalling the cars to fix the problem would be expensive. So GM and EPA instead agreed to have the automaker implement more-than-offsetting emission reductions in new model cars. The net effect would be less overall pollution than under a recall, at less expense to GM.

But the Public Citizen Litigation Group (representing, one must as-

sume, public citizens who want both more air pollution and more expensive cars) successfully challenged the agreement. The court of appeals was persuaded that the Clean Air Act simply is not flexible enough to allow for anything as radical as less pollution at less cost.

Have It Their Way, or Else. Fast food has never been a popular phenomenon in progressive circles, and now the District of Columbia government is doing something about it. The D.C. Zoning Commission is adopting regulations that bar "fast-food" restaurants from locating in most residential areas. On the other hand, what one might call slow food can still be served in such neighborhoods.

The D.C. government has had trouble defining exactly which class of restaurants to single out for invidious treatment. At last report, it has decided that a fast-food restaurant is one that features carry-out service, disposable utensils, and food that is already cooked and packaged when customers arrive. This definition manages to take in McDonald's and Burger King, but it omits their burger archrival Wendy's (which cooks its patties quickly on the spot). And any of the chains could in theory qualify for a residential location just by slowing down its service and cooking more food to order. Just what everyone needs: an incentive for slow service in restaurants.

maintenance costs than they did in an unregulated market, while those who bought their cars new—having less incentive to dispose of lemons—should spent more. The effect should be visible in gradations, with states with comprehensive disclosure laws like Wisconsin at one end of the spectrum, states with less comprehensive laws like Iowa in the middle, and states like Minnesota with no protective provisions at the other end.

But the data do not conform to this pattern. Using the same data by which they conclude that the used-car market is dominated by lemons, Pratt and Hoffer compared after-purchase consumer repair reports in three adjacent and economically similar midwestern

states. They found no significant differences in repair expenses between the Wisconsin market, the Iowa market, and the Minnesota market, notwithstanding Wisconsin's inspect-and-disclose requirement and Iowa's safety inspection law. This suggests that the disclosure laws are having no visible impact in improving the average quality of used cars, which suggests that they have failed to widen the price gap between creampuffs and lemons, which suggests that they have failed.

Why? It is hard to say. But, as usual, the invisible hands may be working longer hours than the visible ones. One possibility is that a disclosure rule imposes more information-related costs on dealers than buyers are willing

to pay in order to get the advantage of formal notice about defects. If this is the case, the rule may actually be counterproductive. Dealers begin to offer less for used cars to compensate for the additional costs that complying with the disclosure rule entails; individual sellers of cars are therefore less eager to sell, and would-be buyers and sellers either hold on to their current cars or are driven into the unregulated for-sale-by-owner market—with only the manifestly acrid lemons finding their way on to the used-car lot.

Eminently Domineering

The power of the government to seize property by right of eminent domain is a more fearsome power than even that of taxation, if only because it can be more readily aimed at particular citizens. Yet eminent domain is not exactly the most controversial area of the law. Most complaints about it come from the particular citizens that it affects, the people who are forced to give up their homes or farms to the government. Every so often a public controversy will erupt about one of these “takings,” the political coloration of the protest depending on whether the victims are being displaced to make way for, say, an interstate highway—in which case the sympathy comes from the left—or, say, a national park—in which case the sympathy comes from the right. But once the home is torn down the claims begin to seem hopeless, and are quickly forgotten, like those of the Baltic States.

The reason such controversies never became a major source of political division in this country is surely that the use of eminent domain was reserved for few and pressing occasions. Land was only taken for a few kinds of purposes, usually involving projects of obvious general interest such as roads or dams, where a single “holdout” could demand exorbitant compensation on the threat of blocking the project.

There were good constitutional grounds for the government’s powers in this area to be construed narrowly, too. As the Ninth Circuit Court of Appeals said recently, the Founders “foresaw that attempts would be made by the states to take away the private property rights

of the landed minority.” The Constitution and the Bill of Rights accordingly “were designed to prevent such abuses by the majority.” In particular, the Fifth Amendment contains the provision, “nor shall private property be taken for public use without just compensation,” and most state constitutions have analogous clauses that are equally strict or stricter. All of these “public use” clauses have been construed (until recently) not only to require just compensation when private property is taken for public use, but also to forbid entirely takings for purely private use.

Now, however, legislators and judges are radically expanding the government’s power in this area. First, they are gutting the requirement that private property be taken only for “public use.” Second, they are allowing governments to use the condemnation power to take more and more categories of property, including even such intangible assets as sports franchises and drilling leases.

The first process, that of defining “public use” out of existence, has been going on for some time. Long ago the Supreme Court decided that “public use” includes not only the use of such things as roads, but “matters of public health, recreation, and enjoyment” as well. Courts began upholding condemnations of land on which the government wanted to locate opera houses, county fairs, public housing projects, and baseball fields.

These takings still fell within a relatively narrow bound: the land was being taken for uses that were open to the entire public, if only for a fee. That barrier fell with *Berman v. Parker* (1954), where the Supreme Court upheld an urban renewal scheme in which the federal government condemned land, cleared it, and then sold it to private developers. The Court acknowledged that the program involved “taking from one businessman for the benefit of another businessman.” But it said that redevelopment was a proper objective of Congress, and it felt very deferential when such objectives were in question: “the means of executing the project are for Congress and Congress alone to determine.”

Berman v. Parker unleashed the urban renewal bulldozers of the 1950s and 1960s. By the early 1980s the process had gone quite far indeed. Courts allowed the city of Detroit to condemn more than a thousand private homes

to clear land for a new General Motors plant. Missouri passed a law allowing local governments to pass their condemnation power directly to private developers. The "public use" doctrine clearly seemed to be on its last legs. But it was not until this last May that the Supreme Court confirmed its demise once and for all, when it ruled in the case of *Hawaii Housing Authority v. Midkiff*.

Hawaii's land-holding patterns are a legacy of its days as a monarchy. Roughly 47 percent of the state's land is held by seventy-two property owners. The state and federal governments together control another 49 percent. The private owners have long leased their land to private tenants but were unwilling to sell. (Some may have actually preferred to lose their land through condemnation, because the tax treatment of condemnation proceeds is superior to that of sale proceeds.)

In 1967, the state legislature decided to empower the Hawaii Housing Authority to condemn residential parcels from their owners and then sell them to existing tenants. (The possibility of deconcentrating land ownership by selling some of the public sector's holdings seems not to have occurred to the legislators.) The property was not, as in ordinary urban renewal, intended to be put to a different use; the objective was redistribution pure and simple.

The Ninth Circuit Court struck down the Hawaii law on appeal as "facially unconstitutional" on the Fifth Amendment analysis quoted above. It said the law was "a naked attempt . . . to take the private property of A and to transfer it to B solely for B's private use and benefit." (Although it got the letters mixed up, it was hearkening back to a famous H. L. Mencken quote: "When A annoys or injures B on the pretense of saving or improving X, A is a scoundrel.")

When the case got to the Supreme Court, there were at least two things the justices conceivably could have done. They could have agreed with the appeals court that the Hawaiian scheme was unconstitutional, but distinguished the case from *Berman v. Parker* on the ground that in the earlier case the use of the property was being drastically changed. (The precedent was a bit complicated: the actual building at issue in *Berman* was not torn down, but most of its neighbors were.) Alternatively, the jus-

tices have upheld the scheme on some ground having to do with the unique circumstances of Hawaiian history.

But they did neither. In a unanimous opinion written by Justice Sandra Day O'Connor, the Court said that so long as a project could be shown to be "rationally related to a conceivable public purpose," one that is not "palpably without reasonable foundation," a court should not "substitute its judgment for a legislature's judgment as to what constitutes a public use."

Under a standard as loose as this, the traditional requirement of "public use" becomes virtually meaningless surplusage. Once in a blue moon, of course, a court may decide that the objectives of a legislative majority are "palpably without reasonable foundation." But Laurence Tribe, the Harvard Law School professor who assisted Hawaii in the case, thinks that after *Midkiff* there is no longer any "limit to the kind of thing that can be taken by eminent domain." The *Wall Street Journal* has already speculated that the courts might uphold a federal program of randomly taking and redistributing homes from members of one race to another to further the rational public purpose of residential integration.

The implications would be remarkable enough if only real estate were vulnerable to these hazards. But recently the types of intangible assets targeted for takeover have been proliferating greatly. A public utility in California is trying to seize a private company's leasing right to drill on federal land, in hopes of guaranteeing itself access to the geothermal power produced on the site. Courts in the same state are still considering whether the city of Oakland may condemn and seize the Oakland Raiders football team. (The owners had moved the team to Los Angeles back in 1982.) Moreover, Oakland's legal claims have been received respectfully by the state Supreme Court, which unanimously denied a motion by the Raiders' owner to dismiss the case. The court said that "the acquisition and, indeed, the operation of a sports franchise may be an appropriate municipal function." The issue is still being litigated on its merits in the lower courts.

The owner of the Baltimore Colts was somewhat luckier in early 1984 when he decided to move the team to Indianapolis. Baltimore officials did their best to seize the team, pushing eminent domain legislation through the

Maryland House of Delegates in hours and the Baltimore city council in just twenty-five minutes. But the owner had removed all of the team's physical assets from its training quarters the night before the council met. This stratagem may have succeeded in legally relocating the team to Indiana before the city filed suit, which leaves the city's legal prospects uncertain; the Oakland owners had had the misfortune to stay in the same state and therefore within reach of the law.

California Chief Justice Rose Bird wrote that in claiming a power that was "not only novel but virtually without limit," Oakland had posed two "particularly disturbing questions." One is whether a city can condemn a business's employment contracts as easily as it can take a tract of land. The second question is whether a city may take "a viable, ongoing business and sell it to another private party merely because the original owner has announced his intention to move his business."

The latter question is far more than academic, as the large conglomerate Gulf & Western Industries recently learned when it tried to close down its Morse Cutting Tool subsidiary in the old whaling port of New Bedford, Massachusetts. When Gulf & Western announced it would close the plant if it could not find a buyer, Mayor Brian Lawler threatened to use eminent domain to take over the plant. Lawler proposed to have the city itself run the company temporarily until a buyer could be found, or permanently, like a utility or bus line, if none stepped forward.

The issue never ended up in court. Significant opposition emerged to the notion of municipal operation—the local paper asked how city hall could operate a machine tool company "when we can't even get the city's sewers finished and the trash disposed of"—and the mayor backed off that particular scheme. Gulf & Western eventually sold the facilities to a group of investors who will keep the plant in operation.

But if push had come to shove, most legal scholars think that, after *Midkiff*, the city would have prevailed. Attorney Andrew Buchsbaum, whose Institute for Public Representation at Georgetown University assisted New Bedford, says the case was being observed closely for its precedential value as "a new legal tool" for government. Already a coalition

of religious and union activists called the Tri-State Conference on Steel has asked the governments in the Pittsburgh area to take over and run ailing steel plants wholesale through the condemnation power. And Chicago has asked a court to rule that it can take over a U.S. Steel Corporation plant located on its soil.

Such initiatives threaten to enshrine industrial policy at the local level even as it is rejected at the national level. As Robert Lockwood of the Atlantic Council has said, it takes little effort to imagine what New Bedford would be like today if, back when it was the whaling capital of the world, it had forbidden the owners of the tall ships from going out of business.

Many of these problems could be resolved if the courts were to decide to apply the commerce clause of the Constitution to eminent domain cases. A wide range of attempted seizures, especially those motivated by a company's attempt to move away, arguably interfere with interstate commerce. Land owners, however, would still be left out in the cold under such a rule. (In New York City, the Coalition for the Homeless has asked the city to seize and run skid-row hotels in hopes of improving the living standards of their residents.)

Another possible line of defense in the courts would be aggressive enforcement of the just-compensation clause, which could arguably take away the incentive for most large-scale redistribution. Unfortunately, property valuation can be a subjective process, and it is not going to be easy even for well-intentioned judges to police a flood of such cases.

In the absence of some such judicial protection, we can expect a massive increase in the politicization of the economy, as each pressure group begins to consider the ways in which the government could use the power of eminent domain to the group's private advantage. It is not quite clear what recourse property owners will have against such attacks. Presumably corporations could use some of the tactics they use to defend themselves against private takeovers, such as selling their most productive assets (the "crown jewels" defense) or giving top managers "golden parachutes." They might even try to keep their mobile assets on the run from state to state. A more powerful tactic might be to refuse to do business with a newly municipalized factory or even organize an industry-wide boycott—unless (or until) that is

held to violate restraint-of-trade laws. Whether such a boycott is consciously organized or not, expropriating states will likely find it hard to attract new investment—which, however, is no comfort to the existing owners of immobile investments.

If business finds it troublesome to defend itself, it is not easy to see where its judicial (and political) rescuers will come from. The opinion upholding Oakland's power to condemn the Raiders was written by the California Supreme Court's most conservative justice and sole remaining Reagan appointee. On the other hand, it was the court's most liberal member, Chief Justice Bird, who sounded words of warning against "creeping statism"—although even she felt "forced by the current state of the law" to concur in the decision.

As the unanimity of the *Midkiff* and California decisions show, the economic liberties mentioned in the Constitution have become the orphan liberties of the American bench, abandoned by conservative and liberal jurists alike. The conservatives, eager at all costs to exorcise the specter of "judicial activism," are reluctant to restrict democratic choice by a forthright assertion of individual rights of even the most time-honored sort. The liberals have fewer such compunctions on the general principle, but do not feel enough of a policy temptation to take action here. Who will adopt the orphan liberties?

Education Reform and Its Costs

Few movements have been so successful so fast as the movement for "educational excellence." Virtually every one of the fifty state legislatures has been churning out legislation aimed squarely at improving the schools. Colorado alone has passed 114 new laws, and Arkansas is not far behind with 112. Many of the more well-thought-of state governors have identified themselves closely with the cause. The educational establishment itself has largely abandoned open opposition; in some cases it has even put itself at the vanguard of the crusade.

A closer look at the recently enacted measures, however, suggests that there is another side to the story. In some cases, the new laws have been so watered down by political compro-

mise that their effect has been not to challenge the way things have been done in American schools, but to provide the same mixture as before, only more of it. In other cases, the reforms are real, but may have some unwelcome side effects.

The chief ingredient of the new reforms is money and lots of it. Six states have passed massive "omnibus" reform packages to overhaul their education systems: Arkansas, California, Florida, South Carolina, Tennessee, and Texas. All six boosted education spending sharply, by a collective total of \$3 billion, and all but one raised taxes. South Carolina and Arkansas are both paying for their packages by a one-cent hike in the state sales tax. Long-standing taxpayer resistance to higher school spending is being overcome by the promises of excellence.

Although the states are creating various new programs, sixty-one in South Carolina alone, most of the money is going for existing activities. Teacher salaries, in particular, are headed up. Even in states that have passed "merit pay" or "master teacher" programs, much of the new money is going to be spent eliciting not better work (as measured on some quality scale or by outside evaluators) but more work (in the form of longer hours or attendance at professional seminars).

Many states are also spending new money on school finance equalization, a favorite scheme of the 1960s and 1970s in which money is shoved around in an attempt to prevent affluent school districts from spending more per pupil than poorer districts do. (The process can be quite disruptive: in 1976 the New Jersey Supreme Court closed down that state's public schools to force the legislature to comply with such a measure.) Finance equalization may satisfy a demand for equality, but there is little evidence that it results in excellence.

Quite a few states in the Sunbelt are "catching up" in spending-per-pupil with their Northern counterparts. What is ironic is that in recent years the Sunbelt educators had been closing the test-score gap with the expensive northern school systems.

Teacher Training and Certification. Reformers had been calling for opening up both entry and exit to the teaching profession. On the entry side, the idea is to lower the hurdles that keep

so many intelligent people out of teaching, especially the requirements for courses in education. That might allow, for example, former graduate students (or even university professors) to teach elementary and secondary classes in their specialties. Opening up exit would probably mean weeding out the weakest teachers, through testing or other forms of evaluation, in order to create room for newcomers.

The record on this issue is mixed. Nearly all the states have "tightened" standards for teachers. The problem is that some states are making it even harder to become a teacher by requiring applicants to take more courses before receiving a teaching certificate. It is even being proposed that a five-year instead of four-year B.A. in education be required—which would seal off incumbents even more effectively from competition.

Other states are doing the reverse. California, alone among the "omnibus" states, has moved in a gingerly way to deregulate the certification area. A much bolder innovation is occurring in New Jersey, where Governor Thomas Kean has instituted a plan to recruit more teachers with ordinary B.A.s who pass appropriate subject matter tests and meet various other standards. New Jersey has even gone so far as to abolish the education major in its state college system.

Schooling Time. Twenty-six states have taken steps to increase time spent in the classroom by lengthening the school day or curtailing study halls. There is also growing interest in increasing the length of the school year and beginning compulsory schooling at an earlier age. Such measures would be a clear loss for the cause of family choice.

Unfortunately, it remains to be seen whether or not there will be a parallel trend toward abolishing any of the extraneous programs that have been displacing time spent on the basic curriculum in many states, like consumer education, environmental education, and ethnic education. (In Peoria, Illinois, school officials are requiring a blind student to take a drivers' education course in order to satisfy graduation requirements.) "It is no wonder," writes education critic Lawrence Uzzell, "that today's reformers are pushing for a longer school year: It is the only way they can find enough time for the essentials."

Curriculum. Forty-one states have increased the number of courses required for high school graduation. Also, more states are going into painstaking detail in specifying curricular objectives. Vermont now requires graduating students to know how to use a word processor. Detailed statewide curriculum specifications are not a new development: California requires the teaching of kindness to domestic pets, and Oregon requires reference to the "Founding Fathers and Mothers" in social studies textbooks. But the trend appears to be on the upswing. Rigid rules, of course, tend to stifle diversity and experimentation; there is no reason, for example, why American history must be taught in the tenth grade and world history in the eleventh rather than vice versa. Researchers have found that schools that happen to organize their curriculum in unorthodox ways can still be good schools, and, indeed, as the specialized high schools of art and science in New York show, may be superior schools.

Academic Bankruptcy. Four states (Kentucky, Arkansas, South Carolina, and Texas) have recently adopted "academic bankruptcy" laws and policies. These empower the chief state school officer to declare local school districts, in effect, "bankrupt" if they persist in allowing student achievement to lag behind a given norm. Bankrupt schools are subjected to a variety of sanctions. The Arkansas law provides that if less than 85 percent of the students in a school district meet state norms, and the district fails to achieve "reasonable progress" on test scores within two years, its accreditation can be suspended. Moreover, the state can compel the district to merge into another district. Kentucky, on the other hand, uses quite different sanctions. It provides aid to "bankrupt" districts; it also may require them to reallocate their state-aid moneys in specific ways, and, if the districts fail to implement the improvement plan, may limit their authority to hire and fire, spend money, and set the school calendar.

The New Centralism. All these reforms will require whole volumes of new regulations, and will complicate the lives of both local and state administrators; officials in Illinois and Florida have already asked legislators to hold off passing more new laws until they can figure out how

(Continues on page 44)

The *I-Ching* of Acid Rain

Peter Huber

BEFORE HEAVEN AND EARTH had taken form all was vague and amorphous. [Then] the combined essences of heaven and earth became the yin and yang. . . .” Two thousand years later, the story of acid rain begins to unfold.

Acid and alkali are both abundant in nature, and like the yin-yang complements of the *I Ching*, acid-alkali balances also follow a Book of Changes. In balance, acid and alkali are an integral part of every living system and every ecology. Out of balance, acidity or alkalinity can be toxic. The hot question today is whether the acidity in eastern rainfall has reached ecologically hazardous levels.

The name was coined by Angus Smith, a British chemist, in 1872, but purists now prefer to speak of acid “deposition,” which also includes acidic snow and dry acidic particles. By any name, however, acid rain today is a multi-billion dollar regulatory controversy. With the apparent demise of nuclear power, many environmentalists have made acid rain their newest and most pressing cause. Canada is upset about it, Congress is considering sweeping new legislation, and the federal courts are beginning to flex their regulatory muscle.

Peter Huber is a consultant on matters involving energy and the environment.

Whether or not acid rain is an environmental problem, it has most certainly become a social and political corrosive.

So it is not surprising to find that acid rain has spawned a large, complex, and often contentious literature. No short survey can cover all that has already been written. But the plot of the acid rain story is finally becoming clear, even though it remains difficult to determine how the story must end. This acid rain chronicle comes in two chapters. The first deals with the science of sulfur—the chemistry, transport, and ecological impacts of the element as it moves from coal mine to ocean. The second addresses the regulatory options—how sulfur emissions might be reduced or their environmental impacts mitigated, at various stages of the coal-sulfur cycle.

I. THE SCIENCE OF SULFUR

A solution’s acidity is a description of its chemical composition—specifically, a measure of the percentage of hydrogen ions (“pH”) it contains. Water becomes acidic or alkaline depending on what is dissolved in it. Ammonia or calcium carbonate (lime), for example, dissolve in water to make it alkaline; carbon dioxide,

sulfur oxides, and nitrogen oxides make it acidic. The effects counteract each other—add a little sulfuric acid to the water and a little lime, and the solution remains neutral. The gross chemistry of acid rain is relatively simple.

Pure water falling through pristine air would pick up a little carbon dioxide and would therefore be slightly acidic from that source alone. Lightning and other “all-natural” processes may add a little more acidity from nitric oxide. Naturally occurring contaminants such as dust may have a “buffering” effect, adding alkalinity that neutralizes acidity and that may even cause rain to become slightly alkaline. More severe acidification, if it occurs at all, derives mostly from man-made pollutants.

Nitrogen oxides are one cause of acidification. The nitrogen and oxygen are already abundant in the air; and high temperature from a car engine, or a boiler, or perhaps a bolt of lightning causes some of the nitrogen to oxidize. About 21 million tons of nitrogen oxides are emitted into the atmosphere annually from man-made sources. But the most important acidifying pollutant is sulfur dioxide (SO_2). It has twice the acidifying potential of nitric oxide, and it is emitted in larger quantities. The main source of sulfur dioxide is coal.

As it comes out of the ground, coal varies in sulfur content from about 0.2 percent (by weight) for the cleanest coal to 5.5 percent for the dirtiest. When coal is burned in an industrial boiler, one pound of its sulfur yields two pounds of gaseous SO_2 and, in the normal course of things, the SO_2 disappears up the smokestack. That is the fate of about 27 million tons of SO_2 a year at current rates of emission. Two-thirds of that amount, or about 15 to 20 million tons of SO_2 a year, comes from electric utilities, the largest burners of coal. Other industrial boilers and processes account for the rest. Coal-burning power plants are scattered all over the country, but are especially concentrated in the Great Lakes region and the Midwest.

Atmospheric Chemistry and Transport

Sooner or later, somewhere or other, SO_2 that goes up into the air comes down again. Estimates suggest that of the total sulfur emitted to the atmosphere from sources in the eastern

half of the United States, about one-third blows out to the Atlantic Ocean, one-sixth is exported to Canada, and the rest is deposited back on land in this same general region. If atmospheric conditions are unfavorable, SO_2 will first be oxidized (to a “sulfate” ion), then dissolve in water, and finally come down as acid deposition. There is, however, a good bit of uncertainty about where the sulfur dioxide comes to earth, and in precisely what form.

Linearity. In the aggregate, does all the sulfur dioxide that goes up contribute to an increase (somewhere or other) in the acidity of rain that comes down? Clearly not. Some is neutralized before it reaches the ground and, perhaps most important, some is never oxidized and so not converted into acidic form. One key scientific question for the regulator is whether a given percentage reduction in SO_2 emissions will translate into a corresponding reduction in the acidity of anybody's rain.

The assumption of a “linear” relation between SO_2 emissions and acid deposition is reasonable but not necessarily correct, just as it is reasonable but not necessarily correct to assume that the amount of cake you can make depends on how much flour is at hand. The formation of acid rain may be limited by the availability of SO_2 , in which case a linear relation is likely to prevail, or it may be limited by the atmospheric oxidizing agents that convert SO_2 into acid, in which case marginal reductions in SO_2 emissions may produce no change whatsoever in the acidity of the rain. Reducing the amount of flour does not change the number of cakes you can make if what you are really short of is sugar.

There has been much debate about the linearity hypothesis. A fairly large body of European data suggests that a given percentage reduction in SO_2 emissions would yield much less than the same percentage reduction in the rain's acidity. Indeed, European data collected from 1960 to 1975 show significant increases in SO_2 emissions coupled with constant or declining depositions of sulfate. On the other hand, data from the Hubbard Brook Experimental Forest in New York suggest that emissions and acid deposition go hand in hand. In late 1983, based on its analysis of the European and U.S. data, the National Academy of Sciences said this:

On the basis of currently available empirical data and within the limits of uncertain-

ty associated with the data and with estimating emissions, we . . . conclude that there is no evidence for a strong nonlinearity in the relationships between long-term average emissions and depositions in North America.

The double negative ("no evidence" of "nonlinearity") was deliberate, not to be confused with the affirmative conclusion that there *is* a linear emission-deposition relationship. The National Academy noted that its conclusion was "clouded" by three types of uncertainties—a severe paucity of experimental data, a lack of understanding of the meteorological and chemical processes that connect what comes down with what goes up, and ignorance concerning "natural variability" in the acidity of rain. But even the academy's nonconclusion on nonlinearity has been challenged by other scientists who would give more weight to the conflicting European data.

The "source-receptor" relationship. A largely independent question is the geographical one—not *how much* less acid rain we are likely to get for a given reduction in emissions, but *where* the benefit is likely to be felt if (say) emissions are reduced in the Ohio valley. Whose emissions, in other words, are causing whose acid rain?

In the old days, smokestacks were short—which meant that emissions stayed close to the ground and therefore relatively close to home. . . . Regulators, however, thought they knew better.

This used to be relatively easy to answer. In the old days, smokestacks were short—which meant that emissions stayed close to the ground and therefore relatively close to home. Ohio pollution for the Ohioans. The system had a certain rough justice.

Regulators, however, thought they knew better. The original Clean Air Act was built around "no-hot-spot" ambient standards—levels of pollution that are not to be exceeded in anybody's air, regardless of local emission rates. One way to reconcile the apparent contradiction of high local emissions (which are convenient for industry) and low local levels

of pollution (which the legislation demands) is to disperse pollutants very broadly. And so it has come to pass that the 1,000-foot smokestack is now a fixed feature of our industrial landscape.

But, as Tom Lehrer's couplet informed San Franciscans some years ago, "The breakfast garbage that you throw into the bay / They drink at lunch in San Jose." Much the same seems to be true for air pollution, though the scientific details, once again, are cloudier than Lehrer acknowledged.

Even with tall smokestacks, it is possible that the bulk of pollutants stays reasonably close to home, or remains confined in a largely unmixed, downwind plume. But available evidence suggests that the air above the entire eastern region of the country may behave more like a well-stirred pot: salt sprinkled into the cauldron at any point on the surface is quickly dispersed, fairly evenly, throughout the entire soup. This assumption finds support both in theoretical models of wind dispersion of pollutants and from limited experimental data that correlate local deposition levels with emission levels averaged over many states.

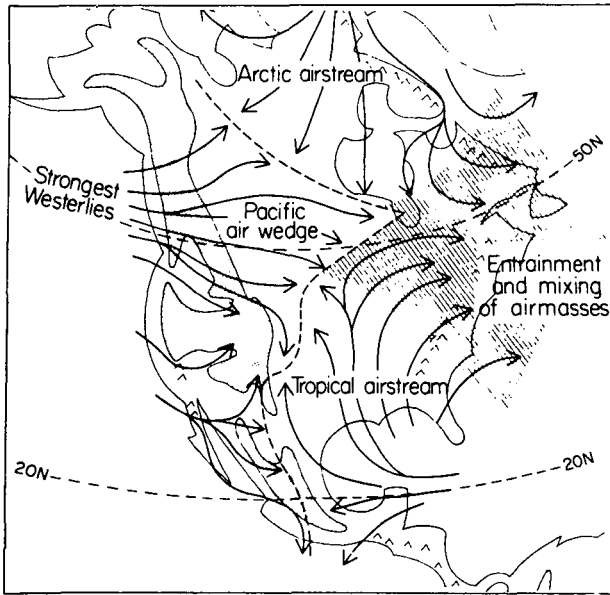
Nevertheless, the well-stirred-pot model of the eastern atmosphere has, at this stage, less than overwhelming scientific support. Other atmospheric mixing models suggest that pollution distributions look more like a marble cake, with the individual streaks traceable to identifiable local sources upwind. Surveying the available data and theoretical models, the National Academy concluded:

On the basis of currently available empirical data, we cannot in general determine the relative importance for the net deposition of acids in specific locations of long-range transport from distant sources or more direct influences from local sources. We regard the problem of relating emissions from a given region to depositions in a given receptor region to be of primary importance and recommend that high priority be given to research relevant to its solution.

Tracer studies, in which inert chemicals are injected into plumes and then followed downwind, are under way.

Notwithstanding these uncertainties, we do have a fairly clear picture of three gross factors: which way the prevailing winds blow

Figure 1: Prevailing Wind Patterns



Source: National Academy of Sciences, *Acid Deposition*, p. 36.

(Figure 1), where SO_2 emissions are concentrated (Figure 2), and where the rain delivers most acidity (sulfate) back to the surface (Figure 3). And the picture here is not particularly ambiguous. It is quite reasonable to surmise from these three charts that what goes up comes down, and comes down pretty much where one might expect—downwind.

Bookkeeping at the Surface

When acid rain or dry acidic deposits do reach the lakes or land, a new set of complex chemical balances comes into play. Acid rain is one among many sources of acid and alkali; it will acidify the soil or water on which it falls only if the bottom line in a much longer list of entries in the acid-alkali books comes out litmus red.

The best understood entry is, unsurprisingly enough, man's own contribution. Current emissions stand at about 27 million tons of SO_2 a year. Under the well-stirred-pot model, that amount of pollutant is dispersed over perhaps 2 million square miles (a $1,500 \times 1,500$ mile area) of land and ocean—which translates to about 0.1 ounces of SO_2 deposited per square yard of surface each year. (For purposes of comparison, several day's production of human urine contains comparable amounts of inorganic sulfate.) But even if all the SO_2 is converted

into acid, we still know nothing about the acid rain's impact on soil or lake acidity until we have assessed numerous other factors.

The chemical composition, thickness, and texture of the bedrock and soil are probably the largest natural variables in the acidification bookkeeping. Acid rain falling directly into a lake may be neutralized by the lake's alkaline bedrock—if the bedrock is alkaline and if the available "buffering" capacity of the lake has not already been exhausted by prior acid deposition. And rain that reaches the lake over or through the soil can be neutralized—or further acidified—by chemicals encountered along the way.

Geology and geography are therefore an integral part of acidification chemistry. Certain regions of North America have much less geochemical capacity than others to neutralize acid deposition, as Figure 4 shows. Soil in the Adirondack region of New York, for example, starts off as among the most acidic in the world. And the topography of the terrain surrounding the lake and the levels of snowpack may be important too. Faster runoff during spring melts may mean that acid snow has less opportunity to be neutralized in the soil, and so may cause "acid shock" to lakes and streams just when fish are spawning.

Trees can also add to soil acidity. The replacement of deciduous trees by conifers increases acid runoff, and the return of farmland acres to a more forested condition may have a similar effect. Forest fires, on the other hand, help counteract acidification by generating alkaline ash. Wetland bogs can also play an important role in acidification. For a long time beavers were thought to be prime culprits in acidification: their engineering proclivities increase acid by increasing shoreline organic decay.

Like the SO_2 emissions of man-made origin, these natural entries on the acid-alkali books are all variables that can change over time. In the Adirondacks, according to New York's Department of Environmental Conservation, the number of conifers has increased by 70 percent in this century, while farmland acreage has dropped by half; and in New York, the number of acres burned has decreased over 90 percent in recent decades due to (what was thought to be) improved forest management. There are, doubtless, other static and dynamic

factors that affect acid chemistry in the woods and wetlands.

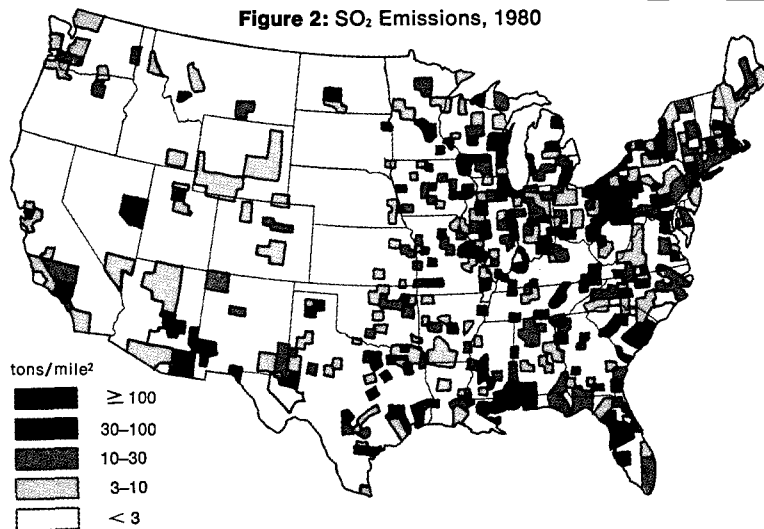
In some instances these various contributors to the acid-alkali balance may well be entirely overwhelmed by acid deposition of human origin. In others it is certainly the atmospheric SO_2 that plays the negligible role. What is beyond dispute is that keeping a full set of acid-alkali books for any large and complex ecological system is well beyond current analytical capabilities. Any one factor may shift the acid balance from "innocuous" to "grave"—or back again to innocuous. And it is very hard to anticipate, much less to quantify, every factor that is important. The scope of the acid rain problem, in other words, cannot be evaluated by a simple inspection of SO_2 emissions followed by quiet armchair reflection on the chemistry of the problem.

Measuring the Bottom Line

But one need not necessarily count every bean to determine how many end up in the bag, or how rapidly the bag is being filled. The acidity of soils and lakes can be measured directly and quite simply. The simplicity of the measurement, however, often obscures the complexity of the question to be answered.

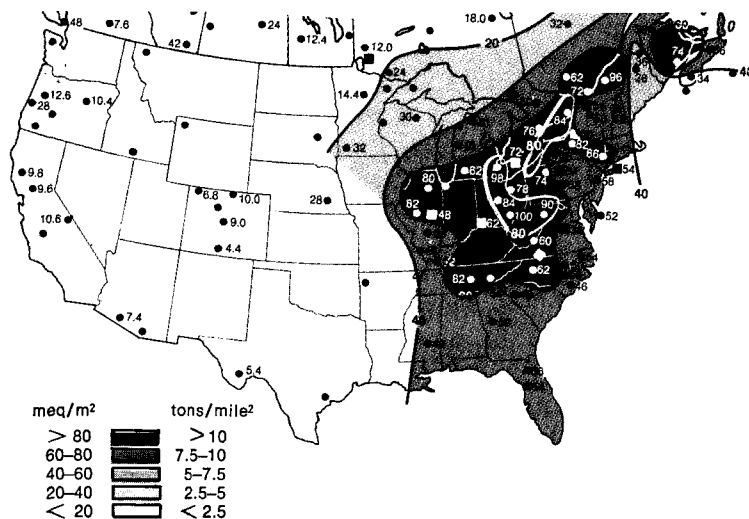
Before and after data. One large body of nonevidence receives much attention. "I've been to the mountain top," the disquisition often runs, "and I've seen the acid lake." This may be oratory, but it is not science. A Rawlsian insight into the lake's "original condition" is also needed. Sellers of diet programs and baldness cures know that their advertisements must contain *two* photographs, not just one, and acid rain science requires no less. The best evidence of human-induced acidification is a cor-

Figure 2: SO_2 Emissions, 1980



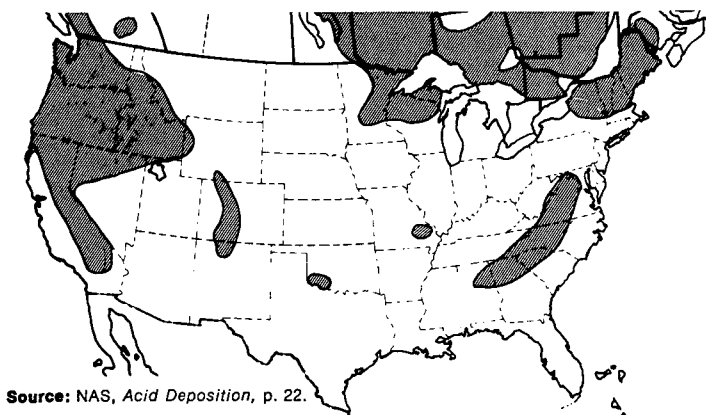
Source: Office of Technology Assessment, *Acid Rain*, p. 64.

Figure 3: Sulfate Depositions, 1980
(in milliequivalents/meter² and tons/mile²)



Source: OAS, *Acid Rain*, p. 67.

Figure 4: Regions with Low Capacity for Neutralizing Acid Deposition



Source: NAS, *Acid Deposition*, p. 22.

relation between historical levels of acidity in soils or lakes and emissions levels in nearby or distant areas.

There are indeed data of this character, and they reveal quite convincingly, that some lakes, in some areas, have increased in acidity over the past fifty years. But the data are very sparse.

Oceans and large rivers and lakes have abundant buffering capacity and for the most part have simply shrugged off man's acid contributions without difficulty. Evidence of acidification trends has been found almost exclusively in smaller lakes and streams, especially those at high elevations (above 1,000 feet). The most studied region is the New York Adirondacks, and the most widely cited studies have been by the New York State Department of Environmental Conservation. The department's first study, issued in 1976, surveyed 214 of the 2,800 Adirondack Parks lakes. Between 1929 and 1937 about 10 lakes were quite acidic. By 1975 that number had increased to about 105—or about 52 percent of the sample. The trend in this study is indisputable, but the percentages measure only the prescience of the investigators in their selection of which lakes to study. A later study, issued in 1984, sampled 1,047 lakes and ponds in the same region; it found 19 percent of the lakes acidified, representing less than 4 percent of the surface area of the water that was sampled.

Fish-population histories in lakes and rivers have supplied an indirect biological indicator of acidification trends, because fish cannot survive in excessively acidic water. Once again, there *is* some sign of acidification trends here: fish populations have indeed declined in some lakes and rivers in New York, Ontario, and Nova Scotia in recent years. But once again the evidence is very limited. The 300-page report on acid rain released by Congress's Office of Technology Assessment (OTA) in 1984—a report that I read as distinctly sympathetic to proposals for more regulation—contains less than two pages summarizing scientific correlations between historical changes in SO₂ loadings and observed changes in lake and stream acidity or fish populations:

Directly comparing current conditions to historical data, only a small number of surface waters in North America are *known* to have acidified. . . . In the Adirondack

mountains, the only U.S. location in which scientists have documented *fish population* declines, . . . New York State . . . has reported the disappearance of fish populations in about 180 lakes. Four other areas [outside the U.S.] are known to have experienced losses of fish populations associated with surface water acidification. . . .

Acid deposition may not be the sole cause of the changes. . . . Other man-induced stresses and natural processes can also alter surface water chemistry. However, the largest numbers of acidified and extremely sensitive lakes and streams are located in regions currently receiving the highest levels of acid deposition.

The only other before-and-after evidence that I have come across consists of core samples taken from the bottom of lake beds in the Adirondacks. These present a record of quite alkaline conditions prevailing until about 1 million B.C., neutral conditions until 10,000 B.C., and gradual acidification from then on. There *is* a trend here—but over a time scale much longer than that associated with SO₂ emissions of human origin.

The "Brand X" approach. If you cannot use before-and-after salesmanship, it is quite reasonable to turn to comparisons with the competition. This is an acceptable scientific method, but once again, the data currently available leave much to be desired.

In one major recent study commissioned by OTA, The Institute of Ecology (TIE) compared surface acidity levels in northwestern Ontario and northern Minnesota—regions that are *not* exposed to high SO₂ levels—with acidity levels in geologically similar areas of the northeast that *are*. On the basis of this comparison TIE concluded: "We estimate that about 3,000 lakes and 23,000 miles of streams—or about 20 percent of those in sensitive areas—are now extremely vulnerable to further acid deposition or have already become acidic."

What's shaky in this? A good bit. At the outset, the alarming 20-percent figure measures only one thing: how successfully TIE anticipated its own conclusions. The area studied by TIE was a carefully selected checkerboard of regions expected at the outset to be "sensitive" or "vulnerable" to acid deposition. A "better" definition of what area to study could, in other words, have raised the percentage to one hun-

(Continues on page 56)

An Acid Test for Congress?

Robert W. Crandall

THE CURRENT DEBATE over acid rain is often perplexing. As with many environmental issues, public concern has outrun the scientific basis for alarm. But even if the experts were agreed that a major program to combat acid rain were justified, it is difficult to see how members of Congress could come together on the details. The acid rain issue has fractured the political coalitions built by environmentalists for past legislative battles, and there are no replacements in sight.

In this article, I shall not address the merits of the case for limiting the sources of acid rain. Rather, I shall trace the political economy of past air pollution legislation in order to help explain the current legislative logjam in this area.

The Old Coalition and Its Consequences

Legislation (unlike acid rain) is not made in heaven. The 1970 and 1977 Clean Air Act Amendments created an incredibly complicated regulatory framework under which the Environmental Protection Agency (EPA) and the states control industrial and utility emissions. But there was method in this tortured madness.

Robert W. Crandall is a senior fellow in economic studies at the Brookings Institution.

Political method. The clean air legislation of the 1970s was shaped by an unusual coalition of defenders of declining industries, high-sulfur coal producers, and environmentalists.

The first leg in this triad of support came from the tired and dirty Northeast and Midwest, trying to protect itself from the growing and clean West and South. According to my analysis (*Controlling Industrial Pollution*, 1983), congressional votes for strict environmental controls came predominantly from the higher-income, low-growth states of the industrial Midwest and Northeast. Peter Pashigian's research shows in even greater detail that support for the nondegradation aspect of clean air policy came predominantly from urban northeastern members of Congress.

The political payoff for these supporters of the clean air legislation has been protection from industrial flight. The protection takes the form of much stricter controls on new sources than on old sources of the major "criteria" pollutants (such as particulates, SO₂, and NO_x). New sources—that is, new plants or additions to plants—are subjected to tight engineering standards and careful scrutiny regardless of the quality of the surrounding air or the density of the local population. Moreover, EPA and the states require detailed demonstrations of the potential emissions from each and every

one of these new sources. Standards for older sources, in contrast, are much more lenient, and EPA and the states are far from rigorous in making sure that even these standards are followed. Emissions monitoring is rarely continuous; it usually takes the form of an occasional well-announced visit from enforcement authorities or a request to submit letters indicating compliance with standards.

The result of this new-source bias is that pollution control costs are loaded disproportionately on new sources and, therefore, on geographic areas where the prospects for new investment in basic industries are strong. Existing sources get by with emissions levels that are far above those for new sources. Many mid-western power plants, for example, have SO₂ emissions that are four or five times the allowable levels for a new plant of the same size. This of course helps the employees and owners of the older, less competitive plants in the northern areas of the country.

A second leg of support for the clean air initiatives of the 1970s was provided by representatives of coal-producing states in Appalachia and the Midwest—many of whom, of course, were also old-industry defenders. Their backing came in exchange for a most curious form of regional protectionism, embodied in the 1977 amendment to section 111. That amendment requires (1) that all *new* emitters of sulfur oxides, whether they plan to burn clean or dirty coal, install the best available continuous emissions reduction technology—meaning flue gas scrubbers—and (2) that EPA set minimum percentage reduction levels for such equipment. These requirements, quite simply, have eliminated the incentive for utilities in the Midwest to import low-sulfur western coal to comply with the new-source standards. Thus the utilities have continued, instead, to use higher-sulfur eastern coal, incurring no relative financial penalty for this less-than-optimal choice of pollution control strategies.

The scrubber requirement was, of course, also welcomed by old-industry defenders, because it prevents utilities in the West and Southwest from simply using local low-sulfur coal to minimize emissions cheaply. New sources in these latter areas must include enormously costly scrubbers, regardless of the sulfur content of the local coal. A 1978 EPA study demonstrated the punitive nature of section 111

for the rapidly growing Southwest. According to the study, section 111 would raise electricity rates by as much as 11 percent in the Southwest but by only 0.3 percent in the industrial Midwest. It is no wonder, then, that even congressmen from the parts of the Midwest and Northeast that had no coal reserves supported the provision.

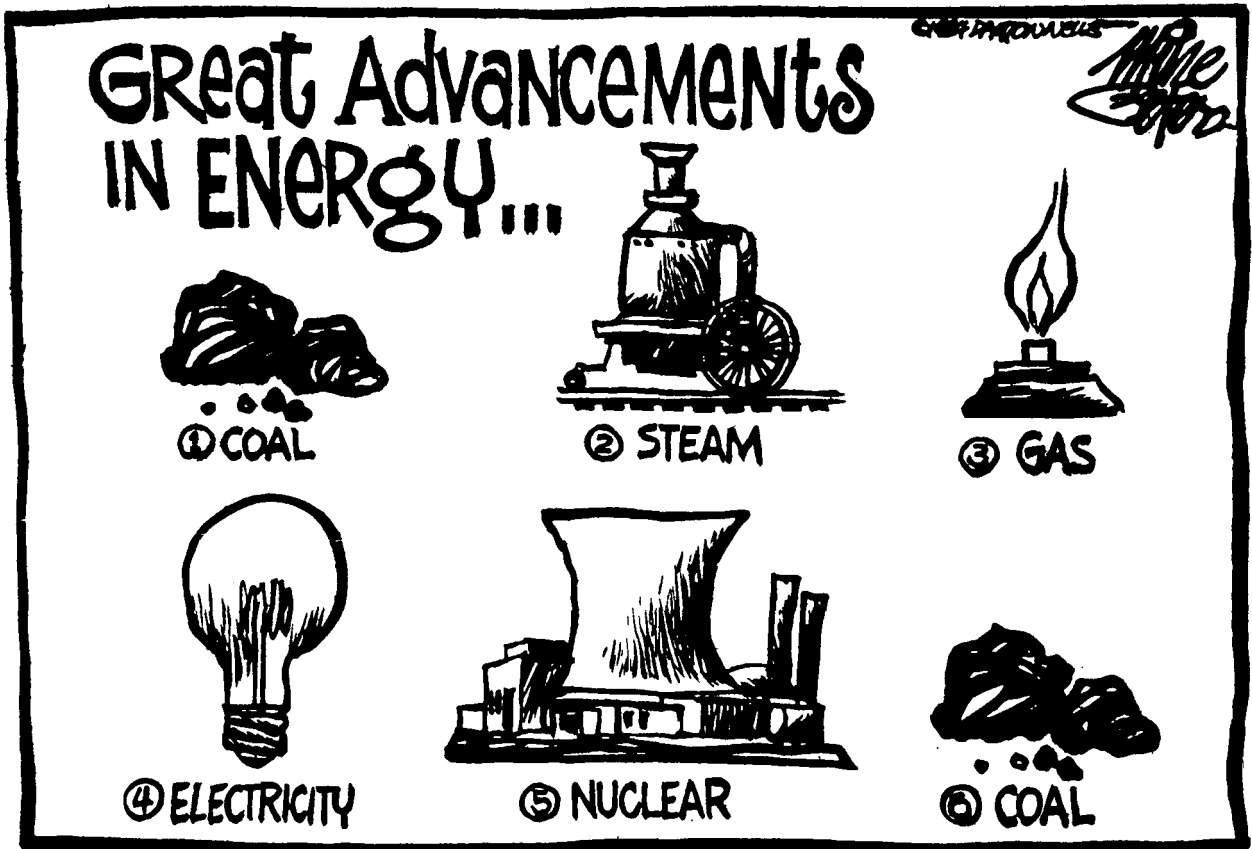
Finally, the third leg of support for the 1970s legislation came from environmentalists. Their support for section 111 was, at a superficial level, easy enough to understand. Scrubbers seemed to hold out at least some promise of environmental progress at little administrative and supervisory cost. A utility cannot fake the installation of a \$200 million piece of hardware, and once the hardware is in place no changes in the political climate are likely to lead to its removal. A scrubber offers, in short, the appearance of rigid, mechanical certainty in pollution control—certainty that the more flexible (and much cheaper) control options perhaps do not.

The Environmental Consequences

Environmentalists should nevertheless have known better. It is now abundantly clear that their unholy alliance with traditional polluters did much for the polluters and little for the environment.

Section 111, as already noted, insists on scrubbers rather than low-sulfur coal as the primary means of controlling emissions. But scrubbers are relatively unreliable devices that have a tendency to break down all too often. Since local authorities and EPA are not able to monitor all major emitters continuously, a breakdown may go uncorrected for a considerable period during which the utility spews enormous quantities of SO₂ into the atmosphere. Were the utility using low-sulfur coal instead of scrubbers, such incidents would obviously not occur. As a result, the scrubbing requirement can dramatically increase both costs (relative to the burning of low-sulfur coal) and SO₂ emissions.

There is more to this environmental irrationality. The scrubber requirement has added substantially to the cost of new plants and so has reduced the utilities' incentive to replace older, belching boilers with newer, cleaner fa-



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cilities. Had the utilities been free to use low-sulfur coal to meet new-plant performance standards, they would have replaced these dirty, older plants more rapidly. In fact, a 1979 study of EPA options under section 111 revealed that increasing the severity of the percentage-reduction (scrubber) requirement increased both costs and emissions *even when the scrubbers worked perfectly*, if one took into account the reduction of the replacement rate for older boilers.

Finally, the 1970s legislation deliberately refrained from grappling in any serious way with the problem of controlling interstate pollution. Section 126 of the act ostensibly addressed the problem, but that provision leaves interstate pollution matters to EPA, and EPA has generally left these matters to themselves. This is not surprising: it is difficult enough for EPA and the states to promulgate and enforce standards on polluters that cause damage in their immediate vicinity; it is virtually impossible when the costs of reducing emissions fall on groups in one state and the benefits accrue to groups some distance away.

None of these problems was unknown at the time the 1977 amendments were passed. Nor was the phenomenon of acid deposition unknown. Environmentalists railed against the use of 1,000-foot stacks for dispersing pollutants from utilities and industrial sources. Yet they refused to tackle the SO_2 problem at its source—the dirty old plants in the Northeast and the Midwest. In their support for the 1970s legislation, environmentalist groups thus knowingly acquiesced in the establishment of two devastating precedents. The 1977 amendments focused on new sources which, by definition, hold only the promise of burning coal, rather than on existing sources, which actually do emit pollutants. And it protected dirty-coal production, which delivers sulfur to the utilities in the first place, rather than encouraging the production of clean coal, which keeps the sulfur underground.

It is not surprising that the “environmentalist” policy was eagerly supported by legislators from such staunch industrial bastions as Ohio, Illinois, Indiana, and Pennsylvania. Fully 44 percent of estimated 1980 utility emissions

of sulfur oxides came from just fifty utility plants, according to the Office of Technology Assessment, and half of these emissions came from twenty-three plants in those four states. And it is equally unsurprising that this choice of policy produced less than satisfactory environmental consequences. We can now say with confidence that it is past environmental policies, designed to protect dirty coal and dirty industry in the Northeast and Midwest, that have directly and indirectly created the acid rain problem.

Proposed Legislation

There were attempts in the last Congress to atone for these sins from the past. A number of proposals to deal with acid rain were filed, and all focused primarily on reducing the SO₂ emissions of existing utility plants. Large reductions in SO₂ emissions from these sources are of course technologically feasible, and SO₂ emissions are thought to comprise a major share of the precursors of the compounds contributing to acid deposition. All the bills also focused on plants in the Midwest and East. Approximately 80 percent of all estimated utility emissions come from a thirty-one state area, mostly east of the Mississippi, and many of the offending plants are located upwind of the ecologically vulnerable forests and lakes in the eastern regions of the country.

The bills diverged, however, when it came to deciding whose emissions would be reduced, and who would pay for the reductions. The differences are evident in the two principal proposals from the last Congress—S. 3041, which passed the Senate Public Works and Environment Committee, and H.R. 5314 (Waxman-Sikorski), which failed in a House subcommittee vote in May 1984. These two bills provide the main alternative approaches to reducing SO₂, and they are likely to be the leading candidates for acid rain legislation in the forthcoming Congress.

The Senate bill would have required all industrial and utility sources, first, to come into compliance by 1989 with their respective "state implementation plans" (SIPs) as those plans existed in 1981 before recent liberalizations. This would have reduced SO₂ emissions by about 1.5 million tons annually from predicted

levels. The bill also would have required a further 8 million ton reduction in emissions by 1995, a reduction to be allocated by agreement among state governors or, failing that, by formula in proportion to utility emissions above 1.5 lbs. per million Btu's after implementation of applicable SIPs. Had the bill been enacted, the prescribed formula would probably have come into effect, for it seems unlikely that state governors could readily have agreed on any other formula for allocating the \$5 billion or so annual costs for achieving the mandated reductions in emissions. In any event, ratepayers would have shouldered all costs of reducing emissions from their own utilities.

The House bill would also have allocated reductions in excess emissions among existing power plants, but it would have required a 10 million ton reduction from 1980 levels by an unspecified date. The reduction was to have been achieved by requiring each state to reduce a large part of emissions from utilities that emit more than 1.2 lbs. per million Btu's. In addition, the fifty dirtiest plants in the thirty-one states would have been required to install flue-gas scrubbers to reduce their emissions by 70 to 90 percent. (Once again, scrubbers were to be required here even if burning low-sulfur coal were a more efficient approach to achieving the same end.) A tax of 1 mill per kilowatt hour would have been levied on all non-nuclear power in the forty-eight states to pay 90 percent of the cost of these scrubbers, with remaining monies used to compensate utilities for part of their costs in achieving the rest of the 10 million ton reduction.

Regional Effects of the Two Proposals

The most interesting aspect of the two bills is how they would have redistributed the burdens of controlling air pollution. Both bills targeted most of the reductions and, therefore, control expenditures on the principal beneficiaries of the 1977 legislation: older utility plants in the Midwest and the producers of dirty coal. Moreover, since these two groups overlap geographically, several states would suffer a double whammy.

As Table 1 shows, more than half the projected emission reductions under each bill would have come from eight midwestern states.

Table 1
EMISSION REDUCTIONS REQUIRED
UNDER THE TWO BILLS, THIRTY-ONE STATES

	Senate Bill			House Bill		
	1995 base	1995 goal	Percent reduction	1980 base	Goal	Percent reduction
<i>New England</i>						
Maine, N.H., Vermont	0.06	0.05	12	0.10	0.05	54
Mass., Conn., R.I.	0.32	0.25	21	0.31	0.21	33
Subtotal	0.38	0.31	19	0.41	0.25	38
<i>Middle Atlantic</i>						
New York	0.52	0.37	29	0.48	0.26	46
Pennsylvania*	1.27	0.72	43	1.47	0.62	58
New Jersey	0.18	0.08	56	0.11	0.07	34
Subtotal	1.97	1.17	41	2.06	0.95	54
<i>Midwest</i>						
Ohio*	2.44	0.86	65	2.17	0.58	73
Michigan	0.62	0.37	41	0.57	0.33	41
Indiana*	1.79	0.59	67	1.54	0.37	76
Illinois*	0.95	0.48	50	1.13	0.37	67
Wisconsin	0.68	0.13	34	0.18	0.11	36
Minnesota	0.19	0.13	34	0.18	0.11	36
Missouri	1.27	0.40	68	1.14	0.25	78
Iowa	0.25	0.13	49	0.23	0.11	54
Subtotal	8.18	3.15	61	7.44	2.26	70
<i>South Atlantic</i>						
Maryland, D.C., Delaware	0.36	0.20	44	0.28	0.15	47
Virginia*	0.23	0.16	32	0.16	0.14	16
West Virginia*	1.03	0.49	52	0.94	0.37	60
North Carolina, South Carolina	0.74	0.55	58	0.74	0.28	62
Georgia	0.82	0.34	58	0.74	0.28	62
Florida	0.94	0.49	48	0.73	0.39	46
Subtotal	4.12	2.23	46	3.50	1.80	48
<i>South Central</i>						
Alabama	0.43	0.21	50	0.54	0.26	52
Kentucky*	0.87	0.43	51	1.01	0.30	70
Tennessee*	0.98	0.50	49	0.93	0.27	71
Mississippi	0.28	0.12	57	0.13	0.06	57
Arkansas	0.11	0.11	1	0.03	0.02	35
Louisiana	0.15	0.16	-3	0.03	0.03	0
Subtotal	2.82	1.53	46	2.67	0.93	65
TOTAL—31 states	17.47	8.39	52	16.07	6.20	61

Source: ICF, Inc., *Analysis of a Senate Emission Reduction Bill (S-3041)*, February 1983; U.S. Congress, Office of Technology Assessment, Staff Memorandum, *An Analysis of the Sikorski/Waxman Acid-Rain Control Proposal*, June 21, 1983.

These eight states would have had to eliminate roughly two-thirds of their estimated utility SO₂ emissions. Other dirty-coal states outside the Midwest would also have been heavily affected. In fact, the Senate bill would have required more than half of the nation's projected 1995 utility emissions reductions to come from the eight Appalachian and midwestern states (identified with asterisks in the tables) that now account for two-thirds of U.S. coal production. Pennsylvania, Ohio, Indiana, and Illinois, all key actors in the dirty coal/clean air coalition in 1977, would have been required to contribute 42 percent of the total SO₂ reductions.

Utility rates would also have risen sharply in several dirty-coal and midwestern states. Such rate hikes would have gone as high as 5 to 7 percent for an 8 million ton reduction, and to more than 10 percent for a 10 million ton reduction, as Table 2 shows. Even with the 1-mill electricity tax, which would have defrayed roughly two percentage points of the latter costs, coal states such as Ohio and Kentucky would still have suffered rate increases averaging 8 to 10 percent.

In addition, under the Senate bill, some of the same states would have lost much of their coal production as utilities shifted toward lower-sulfur coal. Indeed, the loss for Ohio, Indiana, and Illinois was estimated at 55 percent of future production in a 1983 study by ICF, Inc., an economics consulting firm. The House bill's full-scrubbing provisions would have provided some measure of protection to coal producers, but would also have entailed significant increases in the already enormous control costs. Since dirty-coal states are, for the most part, also large pollution emitters, even these states had strong reason not to support the

economic folly of the full-scrubbing requirements. The scrubbing provision of section 111, after all, was palatable to the eastern industrial states only because its burden fell mostly on the West.

The high costs that any polluter-pays program would impose on polluters undoubtedly explains why the House bill included a national kilowatt-hour tax, by which consumers in forty-

eight states would subsidize the control costs of eastern and midwestern utilities. But how can congressional representatives from the West justify a vote for a tax on their constituents that is designated for use in the Midwest

But how can congressional representatives from the West justify . . . a tax on their constituents that is designated for use in the Midwest for the benefit of the East?

Table 2
PERCENTAGE INCREASE IN ELECTRICITY RATES
UNDER THE TWO BILLS
(from 1980 base)

		House Bill (assuming full compliance)	
Senate Bill, 1995		With Kwh tax	Without Kwh tax
<i>New England</i>			
Maine, N.H., Vermont	0.7	1.4	2.1
Mass., Conn., R.I.	0.7	1.5	0.6
<i>Middle Atlantic</i>			
New York	0.6	2.1	1.3
Pennsylvania*	3.3	3.7	3.8
New Jersey	1.0	1.8	1.0
<i>Midwest</i>			
Ohio*	5.6	8.2	10.8
Michigan	2.3	2.8	2.1
Indiana*	7.3	9.0	11.7
Illinois*	0.7	3.8	4.2
Wisconsin	5.4	5.4	5.0
Minnesota	0.2	3.4	2.3
Missouri	4.5	7.7	10.0
Iowa	2.6	2.2	1.0
<i>South Atlantic</i>			
Maryland, D.C., Delaware	2.5	2.7	1.7
Virginia*	1.1	1.8	0.8
West Virginia*	5.2	5.5	6.4
North Carolina, South Carolina	0.9	3.4	2.2
Georgia	4.3	7.8	7.8
Florida	2.3	3.0	2.5
<i>South Central</i>			
Alabama	1.3	2.8	2.3
Kentucky*	3.6	10.2	12.4
Tennessee*	2.2	10.4	14.1
Mississippi	3.1	3.6	3.3
Arkansas	0.3	1.1	0.0
Louisiana	—	1.9	0.0

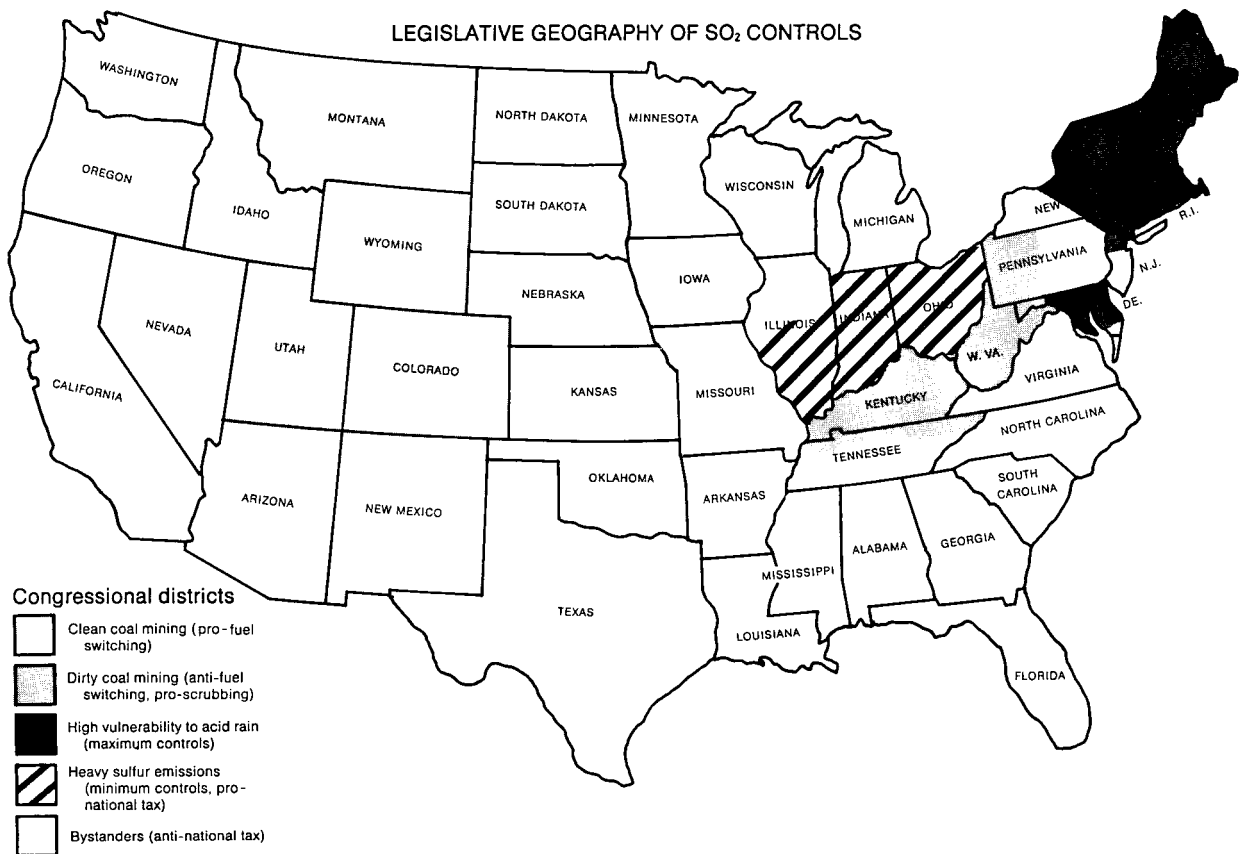
Source: Same as Table 1.

for the benefit of the East? The western member of Congress who is able to persuade her constituents of the wisdom of this policy deserves a very high-ranking diplomatic post.

The challenge facing acid rain activists is thus very clear. If they are seeking an efficient emission-control policy, they must present their erstwhile allies in the Midwest with sizable increases in electricity rates. And they must also accept the transfer of a significant portion of coal demand from the dirty-coal regions in the Midwest and Appalachia to the western fields in Wyoming, Montana, and Colorado. An inefficient program, designed to protect high-sulfur coal mining, will simply add to the already astronomical costs of the proposed programs in those states that mine high-sulfur coal—states which are, in many instances, also major polluters whose emissions must be curtailed. Finally, any attempt to shift pollution control costs from local to distant ratepayers who have no interest in the problem will surely engender new opposition. A betting man would give sizable odds against any acid rain legislation in these circumstances.

The Politics of Not Sharing

The odds grow even longer when the bookmaker considers what factors actually controlled the details of the acid rain bills proposed in the last Congress. If the bills had in fact been designed with environmental protection as their paramount concern, support might eventually have crystallized around them. But they were not so designed, and the considerations that did enter into their formulation are not the stuff of national political coalitions.



Source: Adapted from the Office of Management and Budget.

An "efficient" control policy is one that reduces emissions until marginal control costs are equal across plants and states. A politically optimum policy, in contrast, requires states to reduce emissions by some nationally uniform fraction of their current departure from efficiency. Under such a policy, states that are currently far from efficient control are given the most lenient standards. They are rewarded, in other words, for their past misbehavior. This is indeed the general approach taken in both the Senate and House bills: both would have required proportional rollbacks from current emissions that exceed a threshold level.

To gain a more detailed insight into the political implications of this general approach I performed a statistical analysis of the SO₂ reductions mandated for various states. Specifically, I used regression analysis to correlate the emission control burdens placed on different states by the House or Senate bills with three factors—each state's air quality, distance from the endangered lakes and forests of New York and New England, and number of political representatives on the relevant legislative

committees.* The results indicate that the bills have been crafted with more attention to distributing the burdens of pollution control than to mitigating the adverse effects of pollution.

One might expect under a scientifically rational regulatory initiative that, first, areas with severe local SO₂ problems would be dealt with more strictly than those with lower ambient SO₂ concentrations. My statistical analysis reveals, however, that Congress was not particularly moved by considerations of local air quality. Examination of the targeted reduction for twenty-five states (or groups of states) in my sample provides evidence that both bills did ask for greater relative emissions reductions from states with the greatest local SO₂

*The regression equation related the departure of required emissions (R) from "efficient" emissions (E) to the current departure of existing emissions (A) from efficiency, the miles from the center of the state to the New York-Vermont border (M), the proportion of the state's population living in areas with unhealthy SO₂ concentrations (Q), and the number of committee members from the state (D). The actual equation estimated was:

$$(R - E)/E = a_0 + a_1 (E/A) + a_2 M + a_3 Q + a_4 D$$

problems—but the differences are not statistically significant at standard confidence levels.

Second, one might expect a rational acid rain strategy to place the greatest control burdens on plants nearest to the endangered lakes of New England and upstate New York. After all, distant emissions from Detroit or Cincinnati might not affect the acidity of Adirondack lakes, but clearly New York state emissions contribute substantially to the problem if there is one. My statistical analysis reveals no significant relationship, however, between a state's distance from the New York-Vermont border and the strictness of the emission control required of the state by either the Senate or the House bill. This may be politically important—there are several recalcitrant members from Illinois, Michigan, and Ohio on the House subcommittee who might have been persuaded of the merits of acid rain control if the other members had offered to lean more heavily on their own utilities' emissions. Thus, it is not surprising that a congressman from Ohio cast the deciding vote against the House bill.

Finally, the cynic would expect that membership on the Senate committee or the House subcommittee should be worth something to a member's state or district. Why would midwestern and northeastern members of Congress seek to serve on inglorious backwaters of environmental committees if not to minimize the costs of environmental controls for their own states? The cynic's expectations are fully vindicated in the Senate bill. That bill, drafted by Chairman Robert Stafford (Republican, Vermont) clearly provided more favorable treatment for committee members' states—favoritism evident at a high level of statistical significance in my analysis. The bill's emission control requirements do not much depend on a utility's proximity to environmentally sensitive regions, but do depend substantially on the proximity of the utilities to the members' own home offices.

Conclusion

The two key bills for addressing the acid rain problem in the Ninety-Eighth Congress attempted to lessen the impact of controls on the dirty-coal states, but left most of the burden (quite properly) on those states. However,

neither bill efficiently distributed the burden among the states on the basis of proximity to the endangered lakes and forests of the Northeast. This is probably due to the influence of congressmen from the Northeast who are more likely to gain reelection by criticizing the lack of emission control in the Midwest than by legislating reductions in their own backyard.

Since virtually any sensible acid rain legislation must increase electricity rates and reduce coal output in those midwestern and Appalachian states that form the successful dirty coal/clean air coalition, it is unlikely that this coalition can be reassembled for the purposes of reducing midwestern SO₂ emissions. It is difficult to see how any other coalition can be constructed to get legislation in this area, for the cost of alleviating someone else's problems will always be evident to lawmakers and voters in areas that do not mine high-sulfur coal and face little problem of acid deposition. Perhaps we will have a new approach to environmental coalition politics, but I fail to see even the dimmest outlines of it now. ■

Selected References

- Ackerman, Bruce A. and Hassler, William T., *Clean Coal/Dirty Air* (New Haven, Conn.: Yale University Press, 1981).
- Crandall, Robert W., *Controlling Industrial Pollution: The Economics and Politics of Clean Air* (Washington, D.C.: The Brookings Institution, 1983).
- Crandall, Robert W., "The Use of Environmental Policy to Reduce Economic Growth in the Sun Belt: The Role of Electric Utility Rates," in Michael Crew, ed., *Regulatory Reform and Public Utilities* (Lexington, Mass.: Lexington Books, 1982).
- Environmental Protection Agency, *Electric Utility Steam Generating Units: Background Information for Proposed SO₂ Standards*, Office of Air Quality, Planning and Standards (EPA-450/2-78-007a), July 1978, pp. 7-44.
- Environmental Protection Agency, "New Source Performance Standards for Electric Utilities," *Federal Register*, vol. 44 (June 11, 1979), pp. 33608-9.
- ICF, Inc., *Analysis of a Senate Emission Reduction Bill (S-3041)*, February 1983.
- Pashigian, Peter, "Environmental Regulation: Whose Self Interests are Being Served?" The University of Chicago, 1981, mimeo.
- U.S. Congress, Office of Technology Assessment, Staff Memorandum, *An Analysis of the Sikorski/Waxman Acid-Rain Control Proposal*, June 21, 1983.

Regulating Rackets

Peter Reuter

ECONOMIC REGULATION has been given many justifications; Stephen Breyer in his *Regulation and Its Reform* lists five major and five minor rationales. Here I discuss an industry subjected to extensive regulation for a reason scarcely mentioned in the literature—namely, to eliminate racketeer influence and violent restraints on competition. This regulatory effort seems to have failed. The most plausible explanation for its failure is every bit as distinctive as its original rationale.

The industry in question is the garbage collection business in New York City, usually referred to as the “carting” industry. Although the city picks up residential trash, commercial establishments must contract with private carters to collect their refuse. The carters have been alleged, at least since the 1950s, to be controlled by racketeers, members of the Mafia. In 1956, responding to this concern and to the general belief that there was a collusive arrangement in the industry, the city gave its Department of Consumer Affairs (DCA) the responsibility of licensing carters and setting maximum rates.

Peter Reuter is senior economist with the Rand Corporation in Washington, D.C. The views expressed here are his own.

That regulation has been in place ever since. Yet repeated investigations have found that racketeers continue to play a role, that the city's carting market is not competitive, and that customers are regularly defrauded. In summary, the regulation has been utterly ineffective, a contention that is privately accepted by the regulators themselves. Indeed, it can be argued that the regulation has helped rather than hindered efforts to restrict competition among carters.

In what follows, I will show that the best explanation of the available evidence is that a customer allocation scheme, initiated and policed by racketeers, has existed from the beginning and appears to have grown in strength over the years. In 1980, the most recent year for which I have data, the scheme extracted supracompetitive profits (rents) from the commercial sector of about \$36 million, or 30 percent of the industry's total billings of \$120 million.

The key question is why new carters have not entered a market that offers such large rents and that contains no significant economic barriers to entry. I conjecture that this is explained by the industry's reputation for being

a “racket,” a reputation that naturally deters new entrants. This produces a policy conundrum. The more the government tries to clean up the industry through its major tool, investigation and prosecution, the more it reinforces the major barrier to entry.

The Sale of Customers

There are approximately 300 firms in New York City’s cartage market, operating a total of about 800 trucks. The largest firm has fewer than 20 trucks, and a fifth of the firms have only one truck. Most firms are sole proprietorships or partnerships, and all are privately owned, mainly by the sons or grandsons of the founders. As in other large cities, the owners are almost all of one ethnic group (Italian in New York City, Dutch in Chicago, Lebanese and Jewish in Los Angeles). This homogeneity and the close family links among many small firms arise historically from the need of undercapitalized owners to obtain back-up equipment when their own equipment breaks down; reliability of service is particularly critical for garbage collection firms. Such collaboration facilitates collusion.

Conspicuous by their absence are the three national waste collection firms—Browning-Ferris Industries, SCA Services, and Waste Management. These three companies, all much larger than any other in the industry, have grown by acquiring small local companies throughout the nation. None has entered the New York City market, for reasons we will get to later.

The number of firms in the market has declined substantially since 1956, when regulation was introduced. The decline has resulted not from business failures but from the disappearance, through merger, of small companies. All observers agree that there has been no significant new entry during this period.

The main evidence that carters have a customer allocation arrangement is that they frequently sell customers to each other at very high prices. The DCA requires that all transfers of assets between carters be approved, including sales of customers, which are conducted under the guise of the sale of goodwill. That is, the seller asserts that, because he has provided good service in the past, his customers will purchase future services from the carter that he

recommends, just as a doctor is able to persuade his patients to use the doctor to whom he sells his practice. But the circumstances of the customer sales, as well as the prices paid, make the claim that they are sales of goodwill an unreasonable one. More plausibly, the sales merely confirm that the carters have agreed not to compete for each other’s customers.

Two recent transfers suggest the true nature of the transactions. One is Triboro Carting’s purchase in June 1979 of 149 customers, located in northern Manhattan, from another carter named Cancro. During the next six months, many of these customers complained about the service they were getting, and the local newspaper reported that uncollected refuse was piling up outside businesses. Triboro’s president, testifying at a DCA hearing, admitted some service difficulties, noting that the company had had “nothing but aggravation” from the time it took over the new customers. The problems came from two sources. First, there were a number of incidents in which Triboro’s equipment was damaged—tire slashings, for example—and this led to service interruptions. Second, Triboro took the attitude that customers should adjust to its routine, rather than the reverse.

In December 1979, on the eve of a DCA hearing concerning the propriety of Triboro’s financing of its purchase of Cancro’s customers, three Triboro trucks were burned. The record explicitly attributes this to arson, but contains no discussion of either the motive or identity of the arsonist. At this stage, Triboro asked another firm, Inwood Carting, to assist by lending equipment for service of the 149 customers. The equipment was manned by Triboro employees. Shortly afterwards, Triboro sold the customers to Inwood Carting. The price was \$10,000 plus the assumption of Triboro’s debt to Cancro—making a total of about \$214,000, equal to twenty-five times the monthly billings yielded by the customers.

The counsel for the Department of Consumer Affairs contested the sale on the ground that there was no goodwill to be transferred. After all, he argued, the customers in question appeared generally dissatisfied. Furthermore, Triboro had served them for only a short time and had not even bothered to inform them that Inwood was a fine company and would provide good service. Indeed, Inwood billed the cus-

tomers directly—and all the customers paid—before any formal transfer took place.

At the hearing, the presidents of both Triboro and Inwood were quite explicit about the nature of the transaction. Inwood asserted that its purchase of the customers gave it the “exclusive right to serve” them; both companies agreed that this was industry practice.

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Another transfer of customers that indicates the existence of a customer allocation scheme occurred when a major carting company was dissolved under court order. In 1979 New York Carting, a firm with approximately twenty trucks, was convicted of attempted commercial bribery and attempted grand larceny. The firm and its chief operating officer pled guilty to the charges, which involved payments to purchasing agents of customers for over-looking grossly excessive charges by New York Carting. Soon after the conviction the Department of Consumer Affairs revoked the company's license, intending that revocation to take effect immediately. New York Carting went to court and successfully applied for a stay, gaining six months to dispose of its assets. The physical assets, consisting of trucks, containers, and some plant, were valued at less than \$1 million. Yet the firm was able to sell out for over \$10 million.

The difference between the two figures represents the value that other carters placed on the firm's customers, or “stops.” The customers were sold in six individual transactions. In some of them the sale included physical assets as well as customers, in others it did not. In one transaction the dominant element was a single customer, the United Nations, whose contract was (and is) awarded following public bidding procedures. The purchaser of the contract was willing to pay more than the total income to be generated over the remaining years of the contract—despite the cost of serving the customer—even though, on renewal, the contract would be awarded to the lowest bidder.

For other customers, the sale prices were roughly forty times the gross monthly billings provided by the customer.

These transactions provide even stronger evidence of a broad customer allocation scheme within the industry than does the routine sale of customers by an ongoing carting firm. In the latter case, it could be argued that the new firm was paying the existing supplier to agree not to compete—that is, not to continue to provide the service. But in this instance, a carter who wanted to obtain the custom of a particular stop had no need to hold New York Carting to such a restrictive covenant. It could simply wait. After all, that firm had lost its license and would not be able to provide service after 1979. Yet New York Carting sold its stops at prices at least as high as those reflected in earlier transactions.

In this case, too, it is highly implausible that the sale of customers was a sale of goodwill. As already noted, the court record shows that New York Carting had been overcharging many of its corporate customers and bribing their purchasing agents to look the other way. If New York Carting had any goodwill to trans-

Author's Note

This article draws on a two-year research study that I carried out, with National Institute of Justice funding, on racketeering in legitimate industries. It is based on data from New York City's Department of Consumer Affairs, court records, ongoing investigations by state and local law enforcement agencies, and some informants who have helped obtain convictions against carters in New York City and environs. For further details on industry practices and on my sources of information, readers may wish to consult two of my earlier works, *The Value of a Bad Reputation* (Rand Corporation, P-6835, December 1982) and *Racketeering in Legitimate Industries: Two Case Studies* with Jonathan Rubinstein and Simon Wynn (U.S. Department of Justice, National Institute of Justice, January 1983). Other useful works on the subject include *Vicious Circles* by Jonathan Kwitny (New York: Norton, 1979) and *The Imperfect Union* by John Hutchinson (New York: Dutton, 1972).

It is important, and only fair, to point out that the pattern of mob influence described here does not imply that all individual carters in the five boroughs of New York City are culpable. An individual carter may turn out to be a net loser from the customer allocation scheme analyzed in the article, particularly if he tries to run a “clean” operation; alternatively, he might benefit passively from the scheme without taking any actions of his own to further it.

fer, it was with the corrupted purchasing agents. The Department of Consumer Affairs could scarcely approve a transfer of goodwill based on the payment of bribes.

The sale of carting customers is a fairly routine activity in New York, according to a review of DCA records for two successive twelve-month periods starting on November 20, 1978. In the first, there were twenty-four route sales (in which a carter sold all its customers) and twelve stop sales (in which a carter sold only some of its customers). In the second twelve-month period, the figures were twenty and twenty-four.

The prices that carters pay for customers, expressed as a multiple of monthly revenues, have risen steadily over the past quarter century, according to long-term DCA employees. The most recent recorded transactions appear to be at multiples as high as fifty, whereas in the late 1950s the figure may have been as low as ten. It was not possible to review transactions over the entire period, but it appears that the increase has been steady during that time.

The explanation for this may be that, over time, the carters have become increasingly confident that their customer allocation scheme will endure and prove enforceable. After all, there have been only a few criminal convictions and only two lengthy sentences in the carting industry in the past quarter century. Thus, it would be surprising if any carters seriously doubted either their ability to continue to treat each customer as a monopolist would or the likelihood of other carters' abiding by the rules of the scheme. In addition, the efforts of customers to resist the carters' monopoly prices would probably have declined, given the clear lack of alternative suppliers. Finally, the lack of new entrants always makes coordination easier.

These transfer prices enable us to calculate a rough lower bound for the costs arising from the customer allocation arrangement. The cost is the difference between the price that would be paid for a customer transferred in a competitive market, where the price would reflect goodwill only, and the price paid under the customer allocation arrangement. To be on the safe side, let us assume that the multiple in a truly competitive market would be ten times monthly revenue, much higher than is likely. In New York City the price paid is at least forty

times monthly revenue. The excess of thirty months' revenue is then a lower bound for the capitalized value of the customer scheme.

Exact measures of the total revenues of the carting industry in New York City are impossible to obtain. I suggest that a figure of \$120 million, or \$10 million a month, is reasonable for 1980, the year for which I collected data. The excess valuation then amounts to \$300 million. Since carters can sell and buy customers freely, as DCA records show, we can infer that they are earning a competitive rate of return on this capital value. Assuming a relatively modest pretax return of 12 percent, the estimated excess billings work out to \$36 million a year, or about 30 percent of the industry's annual revenue. (Note that these figures set only a lower bound for another reason: they ignore consumer costs resulting from productive inefficiencies caused by the allocation arrangement.)

The \$36 million figure is necessarily a rough estimate. But if it errs, it is probably too low, not too high. The allocation scheme imposes a significant cost on the commercial sector of New York City.

The Role of Regulation

Why has price regulation failed to prevent this monopolistic pricing? After all, the Department of Consumer Affairs sets ceiling prices, using a process that follows the standard lines of transportation industry price-setting. The industry initiates the process by requesting an increase in the ceiling rate. Then, the DCA's auditors collect evidence on the industry's revenues and expenses, disallowing some expenses, and produce an estimate of average operating costs per cubic yard hauled. The commissioner allows 10.9 percent as a "fair and reasonable profit" on top of that and the ceiling is set. In making this calculation, the DCA refuses to let carters include the costs of buying customers from other carters.

If the carters are earning only the fixed 10.9 percent profit, it is hard to see why they pay \$4,000 for a customer yielding gross billings of \$100 a month and an annual pretax profit of only \$132. The fact is that their actual profit rates must be significantly higher than the DCA's ceiling. In other words, regulation has failed. Law enforcement officials offer two ex-

planations for this situation. First, they say, it is common practice for carters to overstate the amount of trash they pick up from individual customers. It is easy for a hauler to charge the official per-cubic-yard price but simply overstate the number of yards it has collected. The result is that any change in the DCA ceiling price merely affects the degree to which carters overstate the amount of trash they pick up. Second, they say, it is also common for carters to conceal a significant portion of their revenues from the authorities. This not only reduces their tax obligations, but turns the whole rate-setting process into a meaningless ritual.

To deal with the second problem first, there is not much direct evidence to judge the extent of income underreporting—just two recent prosecutions and the statements of a few informants. But the opportunity is certainly there, since many small businesses pay their carters in cash. In any case, not only do observers and participants generally agree that underreporting is ubiquitous, but only the underreporting explanation makes sense of the prices carters are willing to pay to obtain customers.

We have a clearer picture of the problem of overstating service. Many customers have only a vague idea of how much waste their carter collects. The carter usually provides the container in which the waste is placed as well as the label, which may or may not state the container's volume. If it states the volume, the carter may have put on the label itself and, given the odd shape of most containers, the customer will have some difficulty in verifying the volume claim. One prosecutor who investigated the industry in another state measured a sample of containers and found that the volume was, on average, 30 percent less than claimed. Carters may also pick up containers that are not completely full, or alternatively, they may not entirely empty the containers they do pick up.

The investigation of New York Carting provides a straightforward illustration of the measurement problem. The company claimed to be picking up 213 cubic yards a month from the Roger Smith Hotel, but the hotel's owner, a former civil engineer who was used to estimating volumes, contended that the hotel generated only 48 cubic yards. The ensuing investigation proved that overcharges of roughly 300 percent had gone on for some years, with only one challenge. In the earlier indictment of

members of the Kings County (Brooklyn) Trade Waste Association, in 1974, the district attorney showed that overcharging of 500 percent occurred routinely.

Where the Racketeers Come In

Perhaps this particular cartel-like scheme could be maintained by the members themselves, though one would expect (as I argue in the next section) that entry by new firms would have defeated it. However, there is good evidence that it is maintained, and was in fact initiated, by members of the Mafia.

In 1957, in the course of its long investigation into labor racketeering, the McClellan committee (the Permanent Subcommittee on Investigations of the Senate Government Operations Committee) found that members of New York's Mafia had acquired control of Teamsters Local 813 and were using it to discipline carters who would not go along with the customer allocation scheme. Specifically, the chairman's concluding statement focuses on one Vincent J. Squillante, whose "only previous qualifications were in the New York policy rackets and as a pusher of narcotics. . . . [and who] traded on his associations with the underworld and the union to . . . create a monopoly with respect to the collection of garbage and

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the racketeers also set up "whip" companies to discipline nonconforming carters by bidding away their customers with artificially low prices.**

refuse in the Greater New York area." The racketeers also set up "whip" companies to discipline nonconforming carters by bidding away their customers with artificially low prices.

Then in 1974 the Brooklyn district attorney's office announced the results of its lengthy investigation of the carting industry in that borough. It showed that a Mafia member had regularly attended weekly meetings of the Brooklyn Trade Waste Association's leadership and had sat on their so-called grievance committee—which had the function of settling dis-

putes over rights to serve customers. In 1980, an informant gave a similar description of a Mafia presence on a grievance committee in another New York City borough.

According to these accounts, the grievance committee decided which of two carters should serve a particular customer mostly by finding out which of them had begun to serve that site first. Each carter would present ledger sheets showing its dates of service there, and the committee ruled accordingly. However, if the racketeer had an interest in the dispute—if, for example, it involved a carter with whom he was closely linked—he would probably favor his client and the other committee members would go along, regardless of the merits of the case. Reportedly, he did not have an interest in most cases, and the rulings seem to have been fairly objective. Informants also report that if, for some reason, the customer could not be transferred back to the carter that the committee ruled should have him, the second carter had to provide either a customer generating approximately the same revenues or a cash payment. The payment was some fixed multiple of the monthly revenues from the disputed customer.

The grievance committee's rule appears simple enough, allowing of little discretion by the committee or funny business by its clients: whoever had the earlier entry "owned" the customer. In fact, however, cheating was possible, because the method for establishing the date of first service required only the presentation of ledger entries. Two participants started to cheat systematically, creating false ledger pages and scuffing them up to make them appear old. Eventually, they were caught. The "rules of evidence" were changed so that carters had to present some external documentation, such as a billing, that could be less easily faked.

The critical observation is that the grievance committee seems to be amazingly effective. It is difficult to believe that every member of the New York Trade Waste Association accepts that its individual interests are best served by this process. Certainly other cartels have foundered on the impatience of a few members with the existing market allocation. Yet there are no accounts of prolonged disputes between New York City's carters, and one informant asserted that he had not, in two decades of participation, ever heard of an instance of noncompliance. It seems plausible that the

presence of the racketeer on the grievance committee is central to the smooth working of the process. The implied threat of force provides the ultimate incentive to accept the committee's rulings.

The Impotence of Law Enforcement

Perhaps the most surprising finding of my research is the frequency with which law enforcement agencies in New York City and its suburbs have investigated racketeering in the solid waste industry. Ignoring purely administrative procedures conducted by agencies such as the Department of Consumer Affairs and the City Investigations Commission, I counted fourteen different investigations of criminal behavior in the solid waste industry since 1956. There may have been more.

In light of the difficulty of getting adequately detailed complaints, undercover operations are the most plausible investigative tool. In 1972 the Brooklyn district attorney began such an investigation, which found compelling evidence of a broad customer allocation agreement. The result was an indictment of fifty-five carting firms, along with nine racketeers, Brooklyn Trade Waste Association officials, and other persons, for "restraint of trade." Most of the defendants pled guilty and received light fines; those who did not were later able to have the indictment quashed on a technicality. The judge ordered the dissolution of the association.

The Department of Consumer Affairs, for its part, issued temporary license renewals to the indicted carters but then, following the guilty pleas, gave them permanent renewals and a fine of only \$500 a truck. DCA's action was clearly inadequate, whether viewed as punishment or deterrent. The fines of \$500 a truck represented less than 1 percent of the overbillings that the district attorney plausibly alleged were being generated annually.

The city's commissioner of consumer affairs took a rosy view of the effects of these punishments. "We have no evidence now that the industry is ridden with crime," she said. "Commercial firms and customers of the carting industry now seem to be able to change companies fairly easily" (*New York Times*, December 11, 1975). Yet her agency did not do a

study to verify that claim, nor did it monitor its complaint files to find out whether the situation in Brooklyn had changed.

This failure, together with the license renewals, surely signaled to the carters that they faced little risk in continuing their customer allocation scheme. The Brooklyn Trade Waste Association was soon reconstituted as the Kings County Trade Waste Association. More recent investigations in 1977 and 1982 have uncovered overcharging comparable to that which went on before. There is no reason to believe that anything has changed in the past decade, apart from names and numbers.

Reputation and Barriers to Entry

Neither regulation nor prosecution has been able to defeat the cartel-like scheme. It remains to be discussed why new competitors have not entered the market—an especially remarkable fact in an industry full of firms that thrive by holding less than 1 percent of the city-wide market.

Consider, first, efforts to get into the business by acquiring an existing carter. The prospective buyer is likely to place a lower value on an existing list of customers than does the owner. This is obviously true where the buyer is unaware of the allocation scheme. In that case, the owner values the customers as though they are permanent, while the buyer values them only to the extent that he believes that prior service to those customers has generated a stock of goodwill. Of course, many buyers are well aware of the customer scheme, particularly national firms that are experienced in the ways of the industry. But even these buyers will place a lower value on the customer lists, for they will have to take into account the probability that they will not be permitted to participate in the scheme. This is especially true if the buyer is a national firm whose entry might be regarded by the others as a threat to the agreement.

Even if the new buyer is allowed into the scheme, it will be limited to the list of customers it has bought, unless it wants to challenge the scheme, or is able to get a disproportionate share of the market for new customers. Thus it can reap the returns to efficient operation only by cutting its costs in servicing existing cus-

tomers. When a national firm enters a "clean" market, its increases in efficiency pay off in larger market shares as well as lower costs. For such national firms, conspiracy-ridden markets will be among the least attractive entry opportunities.

To the extent that current participants conceal income from tax authorities, there is a second disincentive for entry by a corporate buyer. Even aside from ethics, most corporate buyers would be unable to conceal corporate revenues from the Internal Revenue Service. Thus, even if they accept the present owner's figures on how large the unreported income is, they value that income only at its aftertax value. Worst of all is the possibility that drivers or supervisors might succeed in concealing revenues from the parent corporation. These factors may help explain why so many firms are passed along within the family.

It is the third barrier to entry that is of greatest interest here, for it also strikes at the alternative entry strategy, namely, creating a new firm. That barrier is reputation, in two senses. The reputation of an industry for being racketeer-controlled has one obvious deterrent effect. Prospective entrants have to be concerned that they would be the objects of retaliation by racketeers. Their trucks and plant might be destroyed. Their customers might find themselves threatened or actually subjected to physical violence. This is certainly what happened when the Brooklyn district attorney's office, in an undercover operation, started its own carting firm in 1972.

Any firm that succeeds in the New York City carting industry is likely to come under suspicion for profiting, at least passively, from the racket.

But there is a second aspect of reputation that may be equally important. Any firm that succeeds in the New York City carting industry is likely to come under suspicion for profiting, at least passively, from the racket. A national firm that wants to overcome the vaguely unsavory reputation that the waste-collection industry has nationwide is likely to pause at the prospect of acquiring the additional taint of as-

sociation with New York racketeers. Successful entry might be quite as costly as unsuccessful entry.

This suggests an extremely awkward dilemma for prosecutors and regulators. For the more aggressively they attack the industry, the more notorious it becomes. Every investigation, with its accompanying headlines in the newspapers (even the staid *New York Times* gives considerable prominence to allegations of racketeering in this industry), adds to the bad name of the industry and further deters honest entrepreneurs from becoming part of it. The barrier to entry that protects the conspiracy may be strengthened by each investigation and prosecution.

What if an investigation should actually bring an end to the customer allocation scheme? Surely in that event prosecution would induce entry. But the experience of the New York prosecutors suggests it will not happen. The Brooklyn district attorney was able to outline the conspiracy in quite precise terms—routine

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overcharges of 500 percent, for example. Yet neither the courts nor the regulators came close to taking effective action. Only where prosecutors were able to show the use of violence did the courts impose substantial sentences.

A mature racket of the kind we seem to have in New York's carting industry does not need to make much use of violence, precisely because of its reputational asset. Customers appear to accept the predations of their carters as an inevitable consequence of residence in the fabled Gotham. No doubt there is a level of extortionate pricing that would lead them to test the strength of the agreement aggressively, but quite high levels of monopoly pricing may stir little protest from fear of the consequences, even when no threat is uttered. Every prosecution that once again publicizes the ties between the carting industry and criminals that command

great resources of violence presumably adds to customers' reluctance to challenge the carters. The numerous fictional accounts of rackets in New York do their part to reinforce these fears.

With both customers and potential competitors disinclined to challenge the setup, the carters need only worry about internal dissension. Their industry has many firms, and history suggests that attempted cartels in such industries have a short life—unless they are controlled by racketeers. The defining asset of the racketeer is his reputation. His promise to enforce the agreement is credible, precisely because he is believed to be able and willing to coerce others. Cartel organizing may indeed be his optimal strategy for capitalizing on his reputation.

The New York City garbage collection industry represents, in my view, a case of a mature, racketeer-initiated cartel that is peculiarly hard to suppress because the prime instrument for weakening it, prosecution, has the unintended consequence of adding to the industry's adverse reputation and thus further deterring entry. If this were true only of New York and the cartage industry, it might do nothing more than confirm the widely held belief of Americans that life in New York City is unpleasant and costly. In fact, the phenomenon is not restricted to carting in New York City. It has been found in carting in other places, including Philadelphia, New Jersey, and West Florida. It once was present in certain parts of the garment industry and nowadays is seen in the garment trucking industry. Similar allegations have been made, though not convincingly proven, of vending machine distribution and of fresh produce wholesaling.

In general, these industries are characterized by low technology, minor economies of scale, low entrepreneurial status, a homogeneous product, and local markets. A common ethnic background for both racketeers and entrepreneurs probably also facilitates racketeer involvement. Other factors might be listed. But the list is long enough to suggest that this phenomenon, while not limited to carting in New York City, is likely to be something less than ubiquitous and to be found in activities of declining importance in the national economy. Given the difficulty of breaking up such rackets once they have become mature, this is just as well. ■

Exploitation in the Jim Crow South: The Market or the Law?

Jennifer Roback

MOST AMERICANS BELIEVE that the economic oppression of blacks in the Jim Crow South was the natural result of white racism. According to this view, southern whites were so economically dominant that—given their views on race—the regime of segregation and job discrimination that prevailed in the South was the inevitable result. Indeed, the Civil Rights Act of 1964 can be said to reflect this idea in its prohibition against discrimination by private citizens. But many scholars of the Jim Crow era, impressed by mounting evidence that state and local governments played a crucial role in shoring up the edifice of discrimination, now question this view.

Understanding the exact role of government in the creation of the segregated South is crucial to designing policies for ending segregation. The standard interpretation argues that whites were able to impose segregation on the job market without any special help from the government. If this is correct, then civil rights laws that seek to control private behavior, like

Jennifer Roback is an assistant professor of economics, Yale University. This text is adapted from a longer article forthcoming in The University of Chicago Law Review, Fall 1984.

those that we have today, may be the only way to prevent discriminatory outcomes. The other interpretation argues that effective discrimination could not persist without the active assistance of government. The latter thesis relies heavily on the theories of economist Gary Becker. Becker holds that in a free market employers and other economic actors would lose money if they indulged their “taste” for discrimination. Thus there is constant economic pressure to drive discrimination out of

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the market. This thesis would suggest that the government will be more effective in combating segregation if, instead of regulating private decisions, it scrutinizes carefully the racial impact of its own policies, especially those that interfere with competitive markets.

Before we decide which view is better, let us explore the economics of the southern labor market during the Jim Crow era, defined roughly as the period from *Plessy v. Ferguson* (1896) to *Brown v. Board of Education* (1954). I use a beginning date in the mid-1890s because scholars generally agree that full-scale racial segregation in every area of life did not get under way until about then. That decade saw the disenfranchisement of blacks and hence the end of black political participation in virtually every southern state. Once disenfranchisement was a fact, other forms of segregation and discrimination followed, including the labor laws discussed here.

For most of this time, the southern agricultural economy was dominated by white planters who were heavy employers of black labor. The planters wanted to collude to hold down black wages, both to increase their own profits and to solidify the dominant position of the white race. Throughout the Jim Crow period, they pleaded with one another to hold the line on black wages. "White men must stick together" was the common theme, expressed in the newspapers and magazines of the time.

But as Robert Higgs shows in his book *Competition and Coercion* (1977), class interest and white solidarity were not adequate to overcome the economic incentive for individual planters to offer higher wages to blacks. Despite all the admonitions, white employers competed vigorously with one another for black labor, and blacks frequently left lower-paying jobs to take higher-paying ones. The planters, however, had a weapon to combat those defections: labor laws designed to limit migration of black workers and to limit increases in their wages. These laws may best be understood as attempts to enforce an otherwise unenforceable labor-market cartel among white employers. The laws were necessary, in other words, to do what racial prejudice could not do by itself.

The Jim Crow Laws

Four basic types of legislation aided the enforcement of a labor-market cartel. These were (1) enticement laws and contract-enforcement laws, designed to restrict competition in

the labor market to a time at the beginning of each contract year; (2) vagrancy laws, designed to prevent blacks from having periods of unemployment during which they could shop for higher wages; (3) emigrant agent laws, designed to restrict the activities of labor recruiters; and (4) the convict-lease system, which increased the effective punishment for blacks convicted of breaking the other laws. As Table 1 shows, most of these laws were passed in the 1890s or later.

Enticement and Contract-Enforcement Laws.

The enticement laws, which were directed primarily at white employers, made it a crime for an employer to "entice" a laborer who had a contract with another employer. Their purpose was to prevent employers from actively competing with each other for contract labor. Ten of the eleven southern states that passed such laws made enticement a criminal rather than a civil offense. The contract-enforcement laws, which were directed primarily at black farm laborers, imposed criminal sanctions for the breach of an employment contract. In *The Shadow of Slavery* (1972), Pete Daniel writes, "Under such laws . . . a laborer who signed a contract and then abandoned his job could be arrested for a criminal offense. Ultimately his choice was simple: he could either work out his contract or go to the chain gang."

The economic motivations behind the enticement and contract-enforcement laws were similar. Both sets of laws sought to limit competition for farm labor by mandating that it could only take place legally at the beginning of the contract year.

Vagrancy Laws. The second type of law used to enforce the labor-market cartel was the vagrancy law, which essentially made it a crime to be unemployed or out of the labor force. Alabama's vagrancy law, passed in September 1903, was fairly typical. It defined a vagrant as "any person wandering or strolling about in idleness, who is able to work, and has no property to support him; or any person leading an idle, immoral, profligate life, having no property to support him. . . ." Although vagrancy was usually considered a misdemeanor, this does not mean that the punishment was trivial: misdemeanants were often sentenced to state or county chain gangs.

Table 1
DATES OF PASSAGE OF THE JIM CROW LABOR LAWS

State	Vagrancy	Enticement	Contract Enforcement	Emigrant Agent	Convict Leasing
Virginia	1904			1924	1900-1910
North Carolina	1905		1889	1891	1880-1890
South Carolina	1893	1905	1908	1891	1880-1890
Georgia	1895	1901		1876	1880-1910
Florida	1905	1865	1891	1903	1880-1920
Kentucky					1880-1890
Tennessee	1875	1875		1917	1880-1900
Alabama	1903	1866	1885	1879	1880-1915
Mississippi	1904	1890	1906	1912	1880-1890
Arkansas	1905	1875	1907		1880-1890
Louisiana	1908	1890			1880-1900
Texas	1909			1929	

Notes: Reconstruction ended in 1877. The first disenfranchisement amendment to a state constitution (South Carolina's) was adopted in 1895. The Supreme Court decided *Plessy v. Ferguson* in 1896.

Sources: Available on request.

Obviously, a statute that makes unemployment a crime reduces the amount of searching for new and more remunerative employment; more important, it vastly increases the cost of being out of the labor force altogether. Blacks who traveled, even to visit relatives, faced the possibility of arrest. And blacks who were not working—that is, who were out of the labor force—were often rounded up as vagrants and put to work on local public-works projects or farms. As William Cohen has written, “So common were such practices that the Atlanta *Constitution* could quip to the police: ‘Cotton is ripening. See that the ‘vags’ get busy’ ” (*Journal of Southern History*, 1976).

Emigrant-Agent Laws. The third type of statute was the emigrant-agent law, enacted to limit the activities of agents who recruited labor from one state or county for work in another. These laws regulated the white recruiters rather than the black workers and required agents to be licensed at fees of up to \$5,000 for each county in which the recruiting took place. They were often passed in reaction to a wave of outmigration, and many of the states raised the fees and penalties periodically in response to increased outmigration.

By the time of the “great migration” of blacks to the North during World War I, we find the city of Montgomery, Alabama, passing an ordinance forbidding persons from enticing laborers to leave the city to take employment elsewhere, under penalty of a \$100 fine or up to six months at hard labor, or both. The scope

of the ordinance was far-reaching. Any person who printed, published, wrote, delivered, posted, or distributed any advertisement, pamphlet, or newspaper persuading people to leave the city was an emigrant agent under the law.

The main economic effect of the emigrant-agent laws was to make it more costly for black laborers to find out about job opportunities outside their local market area. The fact that the city of Montgomery attempted to keep its laborers from straying beyond even the city limits shows how narrowly the local labor area might be characterized. The laws could be and were evaded, but not without cost to the agents and the laborers themselves.

The Convict-Lease System. The final prop to the labor-market cartel was the convict-lease system, a statutory practice of leasing out state or county convicts to private firms. Convict leasing was widely used in the South, especially during the 1880s. Unlike forms of convict labor in which the government maintains control over the day-to-day management of the prisoners, the lease system relinquished that control to the lessee firm. In at least one respect, the lease system was worse than slavery. The slaveholder could expect to profit from a slave's future output for his entire working life and thus had an incentive to maintain the slave's health. But the lessee firm had no interest in keeping a convict alive past the end of his sentence or contract period, since the man had no “scrap” or “resale” value. The death rates on these chain gangs illustrate this difference: mortality rates were as high as 45 percent a year.

The significance of the convict-lease system was that its victims were often black misdemeanants, such as violators of the vagrancy and contract-enforcement statutes. The cost of breaking any law can be gauged by a combination of the probability of punishment and the severity of punishment. We have no direct measure of the probability of being punished for vagrancy or contract jumping, but a 45 percent chance of punishment by death certainly must have provided a powerful incentive for

black laborers to stay out of the clutches of the local sheriff.

Postbellum Southern Agriculture

To see why these labor laws evolved in the way they did, we must examine the agricultural sector of the South more closely. The Civil War had brought physical and financial devastation to the southern states, destroying much of the region's material capital and wiping out family fortunes. Agriculture, the South's primary business, was and is capital-intensive and risky. Resources must be committed at the beginning of the season, but financial returns do not come until the end of the season. Emancipation increased this riskiness, putting former slave owners and others who managed farms in the position of being unable to guarantee the availability of labor during the crucial planting and harvesting seasons. For a plantation to succeed, something had to be done to ensure a steady flow of labor.

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Some planters simply hired laborers on a daily or weekly basis, but those who did so faced the risk that other planters would offer higher wages and lure their workers away. This was a particularly crucial problem at harvest time when the work could not be delayed, a fact that raised the value of the laborers during harvest and made planters particularly vulnerable to immediate competition. In effect, hiring workers on a short-term basis meant paying them the day-by-day value of their marginal product. Wages would be low in mid-season and relatively high during planting and harvesting.

Planters resisted this approach for a number of reasons. They believed they were being cheated when they had to pay high wages during the peak seasons. They disliked not knowing for sure whether they would have workers when they needed them. And finally, they undoubtedly were offended at the sight of their former slaves leaving jobs whenever they

chose—and for higher wages to boot. A better arrangement, one that most planters seemed to prefer in the immediate postbellum period, was a year-long contract—with the laborer paid a steady wage over the life of the contract.

This system, however, had some disadvantages. A fixed-wage contract pays wages that are higher than the value of the worker's labor during some periods and lower during others. Thus, sometimes the employer will be giving implicit advances on the employees' wages and at other times the employees will be making implicit payments to the employer. For agricultural workers, the harvest is the high-productivity time when they earn less than the value of their labor; during the rest of the contract period, they are receiving implicit advances from the employer.

The most obvious flaw in the fixed-wage contract system was therefore that it gave the workers an incentive to cheat on the contract by quitting right before the harvest and then hiring out as day laborers. This reasoning served as the rationale for the contract-enforcement and enticement statutes. The assistant attorney general of Mississippi argued in 1917 that enticement laws were a necessity "in an agricultural state where long time contracts are made and monies necessarily advanced in anticipation of the fulfillment of a contract." In short, if the planter offered a fixed-wage contract, he faced the risk that the employees would breach the contract at harvest time. On the other hand, if the planter hired and paid employees on a short-term basis, he still could not guarantee that he would have enough harvest labor. Also, he could not predict the harvest wage that the competitive market would demand.

With all these problems it would have been surprising if some alternative form of contract had not emerged. In fact, as early as 1867, "a majority of planters and laborers were ready to explore alternative crop-making arrangements," according to economic historian Joseph Reid (*Journal of Economic History*, March 1973). Such alternatives—sharecropping contracts and rental contracts—became widespread soon after the Civil War.

Under a typical sharecropping contract, the worker, or "cropper," provided labor for the whole season in return for a share of the crop (usually a quarter to a half) when it was sold, while the landlord provided fertilizer,

mules, equipment, and management skills. Some contracts specified noncultivation tasks, such as barn repair and the like, and stipulated that the cropper would receive a smaller share of the crop if he failed to perform these tasks. Sharecropping contracts still involved employer advances to the workers—which the employer, who usually marketed the entire crop, would simply deduct from the cropper's share before settling up. But the practice succeeded in reducing the employer's default risk considerably by giving the worker an incentive to stay and work out the contract. Since the worker had a stake in the crop on that particular farm, he was not likely to abandon his job, even for the promise of a high wage; and he was less likely to shirk in his effort than he would under a fixed-wage contract.

Rental contracts differed from sharecropping contracts in that they usually required the tenant to pay a fixed rent for the land he cultivated—sometimes a fixed dollar amount, sometimes a fixed quantity of the crop. The rental system placed all the risk of crop failure on the tenant and, even more than sharecropping, minimized his incentive to shirk or run away. Both kinds of arrangements actually made the tenants much more vulnerable to breach of contract than they had been, because they often had to rely on the landlord's calculation of their earnings at the end of the season. In fact, most authors who discuss the period emphasize the weak position of the indebted tenants relative to the landlord.

In short, sharecropping and rental arrangements could reduce the problems the laws were meant to address and indeed were used by a significant number of employers. By 1880, 28 percent of southern farms were sharecropped and 17 percent were rented, large enough percentages to suggest that the contract-enforcement and enticement statutes were not really needed for agricultural stability.

The Impact of the Laws

If the laws were not really needed to ensure agricultural stability, they nonetheless provided southern planters with certain definite advantages. In particular, they kept workers from migrating from the low-wage southern agricultural sector to higher-wage northern and

southern cities. Such migration would have tended to raise agricultural wages and decrease other wages until the wages in the various sectors were equal. The resulting system can justly be regarded as one of exploitation, since black workers were not earning the wage they would have earned had they (and their potential employers) been left free to move and change jobs as they wished.

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The contract-enforcement and enticement laws reduced competition for labor directly, while the vagrancy and emigrant-agent laws reduced it indirectly by curbing mobility from one area to another. Emigrant agents functioned very much like labor arbitrageurs, bringing costly information about jobs in higher-wage areas to workers in lower-wage areas. The emigrant-agent laws made this type of arbitrage more costly and hence reduced the amount of information available to black farm laborers. This, in turn, must have increased the costs involved in moving to a new location. Note that there could be extensive mobility *within* a local area, so that some local markets were effectively competitive; but mobility between counties or states was in many cases quite limited.

There is anecdotal evidence to support the view that blacks were restrained from leaving a county or state not only by law but by unofficial force and the threat of force. Emmett J. Scott reports numerous instances of legal and extralegal violence designed to prevent blacks from moving to northern cities, including harassment at train stations and the actual delaying of trains (*Negro Migration during the War*, 1920). Cohen's 1976 article gives another example:

In September 1937 Warren County, Georgia, cotton growers sought to prevent the farmers of adjoining Glascock County from enticing away their black laborers. Desperate for hands, the men from Glas-

cock County had offered almost to double the rate being paid for cotton pickers in Warren County. Unwilling to abide by the law of supply and demand, Warren County planters mobilized to stop the depletion of their labor force. Sheriff G. P. Hogan described the ensuing events: "There was no trouble, although a number of [the Warren County men] carried guns and fired them into the air. They told the pickers there was plenty of cotton to pick in Warren County and asked them to stay home and pick it. They decided to stay."

There is also statistical evidence to support the view that the laws limited mobility. The first is evidence on productivity, drawn from Stephen DeCanio's excellent econometric study. The second consists of demographic evidence on the relative mobility of blacks and whites in the southern states. Both of these data sources focus on the beginning of the Jim Crow period, in an attempt to learn whether the rise of Jim Crow in the 1890s was associated with any significant change in either productivity or migration.

The Productivity Evidence. Stephen DeCanio carried out a thorough econometric study of agricultural productivity for ten states in his book *Agriculture in the Post-Bellum South* (1974). Using decennial census data, he calculated an economic measure of factor productivity for blacks and whites in southern agriculture from 1870 to 1910. If the laws were successful in hampering black mobility, the greater relative supply of black farmers should have caused a decline in their marginal productivity relative to white farmers.

In the period from 1870 to 1890, most states had still not passed the major Jim Crow laws: only Tennessee had a vagrancy law, for example. Black labor was at least as productive as white during this period, with the single exception of Arkansas in the decade 1870–1880. During the decade 1890–1900, two more states (South Carolina and Georgia) passed vagrancy laws. And it was in these states—plus Alabama, which had passed contract enforcement in 1885—that black productivity fell below white.

The next decade saw the enactment of vagrancy laws in all seven of the other ten states, along with a number of other Jim Crow laws. This time black productivity fell below

white in three of those seven states. There was one counter-trend: in Georgia, which had passed a vagrancy law in the previous decade, black productivity caught back up with white productivity.

Another way to look at DeCanio's data is this. In three of the ten states, black productivity was equal to white during the whole forty-year period. These states were Texas, Florida, and Tennessee—states on the fringe of the Old South and not, as the Deep South was, dominated by plantation culture. The other fringe state, North Carolina, had higher black productivity throughout the period. In five of the remaining six Deep South states, vagrancy laws were closely associated with lower black productivity, although the effect seemed to wear off in Georgia and began before the vagrancy law was passed in Alabama. The only Deep South state that did not show any effect, Louisiana, passed its vagrancy law very late in the period under study (as did Texas). Thus, despite some noise in the data, DeCanio's evidence is broadly consistent with the hypothesis that restrictive labor laws, particularly the vagrancy laws, succeeded in depressing black wages.

Migration Evidence. Data on mobility within states are not readily available, but we do have data for net migration in and out of states. If the restrictive legislation was effective in reducing black mobility, black migration rates should have been cut relative both to their previous levels and to the migration rates for whites.

Table 2 displays net migration rates for each race by state and decade from 1870 to 1910. The first thing to note is that both whites and blacks were mostly migrating out of the South during this period. The exceptions were Florida, the southwestern states of Arkansas and Texas and, to a lesser extent, Louisiana. Clearly, the general westward movement of the American population took place within the South as well.

The second observation is that in the first decade under study, the net migration rates were roughly equal for the two races in almost all the states. By the next decade, however, black migration in Tennessee, Alabama, and Mississippi fell relative both to white migration and to previous black migration. In the 1890s the pattern extended to include Georgia,

Table 2
MIGRATION RATES FOR TWELVE STATES, BY RACE,
1870-1910
(per 1,000 whites or 1,000 blacks)

	Rates of Net Migration			
	1870- 1880	1880- 1890	1890- 1900	1900- 1910
<i>Virginia</i>				
White	-28	-50	-32	-35
Black	-83	-101	-115	-89
<i>North Carolina</i>				
White	-13	-29	-49	-52
Black	-24	-85	-82	-54
<i>South Carolina</i>				
White	33	-58	-32	-22
Black	38	-36	-91	-107
<i>Georgia</i>				
White	-39	-56	-40	-31
Black	-39	18	-18	-18
<i>Florida</i>				
White	79	166	52	156
Black	21	131	160	189
<i>Kentucky</i>				
White	-45	-83	-46	-107
Black	-65	-98	-34	-92
<i>Tennessee</i>				
White	-90	-75	-71	-101
Black	-87	-54	-34	-81
<i>Alabama</i>				
White	-61	-26	-61	-38
Black	-80	-11	13	-29
<i>Mississippi</i>				
White	-72	-135	-83	-36
Black	40	-24	-2	-39
<i>Arkansas</i>				
White	132	42	-118	-74
Black	193	215	-11	67
<i>Louisiana</i>				
White	-45	-36	19	26
Black	2	14	-24	-26
<i>Texas</i>				
White	347	80	59	25
Black	84	35	32	-19

Source: Hope T. Eldridge and Dorothy Swaine Thomas, *Population Redistribution and Economic Growth, United States, 1870-1950*, vol. 3 (1964), tables A1.19 and A1.22.

Kentucky, and Arkansas. These migration trends cannot be linked as strongly to state-by-state changes in legislation as can the productivity differences. But it is clear that some force was operating to reduce black migration in these six states of the central South.

The Law versus the Market

Many influential whites in the South had an interest in keeping blacks from switching jobs easily or moving North. Individually, each specific white employer did not want to lose its workers; and collectively, white planters in

general benefited from the low wages that arose from the general intimidation of the black populace. Privately, however, each employer could profit by "cheating" on the labor market cartel, by offering higher wages as inducements to the laborers. When social pressure, economic power, and custom proved insufficient to prevent such "cheating" and enforce discrimination against blacks, the southern elite resorted to restrictive labor laws. The evidence indicates that the laws were invoked to keep the market from bettering the condition of blacks.

To the extent that racial exploitation requires the backing of law, there are important implications for modern policy. One is that it is government, not private individuals, that must be restrained if disfavored minorities are to make substantial economic progress.

To the extent that racial exploitation requires the backing of the law, there are important implications for modern policy. One is that it is government, not private individuals, that must be restrained if disfavored minorities are to make substantial economic progress. At first glance, this may seem a strange recommendation, but we should keep in mind that a main focus of the Civil Rights Act of 1964 is the prohibitions on various discriminatory actions by government. The economic progress many blacks have made since 1964 may very well have resulted from these new curbs on government rather than from the far more visible prohibitions on discrimination by individuals.

The Jim Crow period also provides an interesting related lesson on the ability of market forces to combat discrimination. Racism was at least as prevalent in the Jim Crow period as it is now. Communities were smaller and more cohesive, making enforcement of social norms easier than today. Yet social and economic pressures by themselves were not enough to enforce a regime that called for the exploitation of black labor. This suggests that those same market forces could serve minorities well today—and that the benefits of a competitive economy go beyond those of prosperity to include social justice as well. ■

Education Reform and Its Costs

(Continued from page 14)

to implement the last batch. Another effect will be to increase immensely the regulatory sway of state governments over local schools—an odd occurrence in this supposed age of deregulation, but perhaps an inevitable one given that the states are increasingly paying the bill. Even as the federal master becomes (slightly) more indulgent, the fifty state masters become stricter. In many ways, the states are even more intrusive, since while federal regulations have usually focused on “equity” (ensuring equal access to services), the states are getting into the heart of the educational process—dictating who teaches what and how.

Of course, this process of centralization is nothing new. States have been increasing their power over local schools for years. During the late 1960s and 1970s, state education agencies increased their personnel levels by several hundred percent. Not the least of the reasons was federal regulation itself. In fact, state education agencies have in some ways become creatures of Washington, which provides a huge share of their funding (much more than the federal contribution to the average school board’s budget). In addition, many federal regulations serve to increase the oversight of state education departments over local school boards.

Now, in many cases for the first time, states will be taking explicit responsibility for educational outcomes. The irony is that the new centralism, by treating school systems as if they were factories subject to management from the top down, may actually make it harder to achieve the goal of excellence. A large body of research suggests that effective schools are a “cottage industry,” best administered by those closest to the “shop floor.” The crucial factors in achieving good results are all things that depend heavily on the local environment: high expectations and demands, good leadership, effective discipline, homework, and dedicated teachers and staff. As Chester E. Finn has said, “if you want to foster the organizational characteristics associated with school effectiveness, you probably have to empower the people who staff the school to make important decisions about what happens within it.”

Such empowerment would not have to require state education agencies to go out of business. It might be possible for the states to take

a “performance standards” rather than a “command-and-control” approach, focusing on the achievement levels that come out of a school, rather than the teacher-hours and dollars that go into it. California, for example, now runs statewide achievement tests and gives official recognition to students who do well on them.

In a way, the “educational bankruptcy” laws—although they infuriate many local school leaders—point the way in this direction. When Arkansas withdraws accreditation from a bad school, it is using a market-oriented sanction for noncompliance—in effect, an informational strategy to generate parent pressure for reform. Compelling a merger into another school district is also probably an effective sanction, by giving the state an “exit option.”

The most effective exit option, however, would be to give the parents themselves vouchers with which they could transfer their children out of “bankrupt” districts and into private or other public schools. The state that builds its education policy around the idea of facilitating family choice, instead of frustrating it, will be the real educational innovator.

To Our Readers

When we asked Peter Huber and Robert Crandall to write about the science and politics of acid rain, we did not imagine the result would turn out to be this special issue of Regulation. Yet we think you'll agree, when you read what they have to say, that their stories were worth printing in full. The double-issue format made it possible to do that and also offer our usual variety of other features and departments.

In another departure from past tradition, we will henceforth publish our annual Regulation index in the last issue of each year, rather than the first issue of the next year. This step will make life easier for librarians and researchers who work with Regulation in annual bound volumes: at last the index will accompany the issues it refers to. The change begins with this issue.

The Rise and Fall of Bus Regulation

Elizabeth A. Pinkston

TWO YEARS AGO, Congress passed the Bus Regulatory Reform Act of 1982, seemingly as an afterthought to its previous deregulation of the three major transportation industries—airlines in 1978, trucks and railroads in 1980. But bus deregulation was in fact the culmination of a classic regulatory cycle. Bus companies began as upstart competitors challenging the railroads, they were transformed by regulation into complacent, non-threatening regulated monopolies, and they were finally forced back toward competition as the winds of deregulation swept through other parts of the transportation world.

In the 1910s and 1920s, public intercity passenger transportation was confined almost exclusively to railroads. The earliest intercity bus operators went into business around 1910, typically offering rides in ordinary four-door sedans between neighboring communities. As roads and vehicles improved, more areas came to be served and longer trips became possible. Buses, in short, began to offer a real alternative to the established railroads.

The railroads quite correctly recognized the bus industry for what it was—a competitive

Elizabeth A. Pinkston is an economist at the Office of Management and Budget. The views expressed here are her own.

threat to their comfortably regulated monopolies—and they resolved to bring it under control. In many cases railroads petitioned state regulatory commissions to regulate buses as well as trucks and in some cases went to court to seek regulation. By the 1920s state governments began to buckle to the pressure, and bus companies began to draw together into industry associations at the state level.

Some of the early state regulatory schemes addressed only safety, others sought to prevent damage to the roads, and still others dealt with routes, rates, and other economic aspects of the industry. As time passed, however, more and more states patterned their regulation of the bus industry after that of the railroads and electric utilities, treating bus companies (quite inappropriately) as natural monopolies. The usual baggage of economic regulation quickly followed, as busy state regulators sought to protect both the industry and the public from “costly duplication of service” and “ruinous competition.” Bus company mergers were encouraged. By the early 1930s Greyhound Lines had amassed more than 40,000 miles of routes and had become the dominant carrier.

But competitive pressures will persist, notwithstanding the most sincere efforts of state regulators. When a 1925 Supreme Court deci-

sion effectively ruled out state control of interstate operations, some enterprising bus companies hit on the ingenious scheme of extending their service just across state lines—entering “interstate commerce,” so to speak, in order to escape the clutches of state regulators.

This set the stage for federal intervention. A 1928 Interstate Commerce Commission (ICC) report, undoubtedly stimulated by the 1925 Supreme Court decision, called for federal controls over interstate bus operations. Seven years later, when bus lines as well as truckers and household movers were under the heavy competitive pressures of the Great Depression, Congress heeded the carriers’ own pleas for protection and passed the Motor Carrier Act of 1935. And a thick fog of comprehensive regulation settled over all three industries.

The Years of Strict Regulation

The 1935 act governed the interstate bus industry for the next forty-seven years. It required bus operators to petition the ICC for operating rights before beginning service on each interstate route and for approval of mergers or other transferrals of such rights. Furthermore, operators had to get ICC approval for all changes in rates, up or down. The commission had no power, however, to keep operators from discontinuing service on a route (short of threatening to revoke authority for other routes); that power was left to the states.

Mergers versus Entry. At first the ICC, like the state commissions before it, looked with favor on Greyhound’s acquisitions of smaller carriers. There were two rationalizations for this policy. First, it would make the industry financially stronger. Second, it would facilitate long-distance travel by reducing ticketing and baggage-checking transactions and by ensuring that connecting buses would use the same terminal. (Bus companies generally operate their own terminals, unlike airlines and railroads, which typically share “union” terminals with their competitors.) Eventually, however, the commission decided to curb Greyhound’s dominance. In 1947, in a move to increase competition in the industry, it encouraged several bus companies in the South and Southwest to form the bus system that became today’s

Trailways. The upstart firm expanded aggressively over the next two decades and emerged in the early 1970s with a market share approaching 20 percent.

Several thousand much smaller carriers filled the niches unserved by the two big carriers. They ranged in size from a few with fairly extensive regional networks to a great many that provided scheduled service over only one or a few city-pair routes. The latter often made most of their money from charter service. For many years, the ICC automatically granted “incidental” charter-service authority to holders of regular-route rights, the idea being that charter profits would help carriers support (cross-subsidize) their unprofitable scheduled (regular-route) service.

While the ICC was encouraging Trailways to emerge as a major competitor on long-distance routes, it continued to favor monopoly in short-distance markets. This policy was put into effect in two ways—by smiling on mergers that would consolidate or “rationalize” operations in those markets and by discouraging new

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entry. The commission’s anticompetitive stance on entry was clearly laid out in its 1936 decision, *Pan American Bus Lines Operation*, which established basic ICC policy in both the trucking and the bus industries for many years thereafter. The decision announced that the commission would consider three criteria in ruling on applications for new authority:

[1] whether the new operation or service will serve a useful public purpose, responsive to a public demand or need; [2] whether this purpose can and will be served as well by existing lines or carriers; and [3] whether it can be served by [the] applicant . . . without endangering or impairing the operations of existing carriers contrary to the public interest.

All three criteria made it very hard for would-be entrants to secure new operating authority.

The third, in particular, seemed designed to keep new firms from encroaching on the monopoly positions of existing firms.

To make matters worse, the ICC interpreted the criteria restrictively. During the 1960s, according to my research, it denied more than a third of the requests for regular-route authority, giving as its reason in 60 percent of the cases that "no need" had been shown for the service. And even when it approved a request, it often granted narrower authority than had been sought—more limited in route structure or in other ways. The ICC's restrictive entry policy undoubtedly also had a profound effect on the number and nature of applications for new authority, both by new firms and by existing firms seeking to expand. Why bother to apply, when the legal costs of doing so were high, the wait for decisions long, and the prospects of approval slim? Since the ICC continued to smile on the "rationalization" of route structures, mergers and acquisitions remained the most practical way for ambitious carriers to expand.

Rates. Typically bus fares were set collectively under the auspices of a national rate bureau—the National Bus Traffic Association, which enjoyed immunity from the antitrust laws. There was, accordingly, little innovation in rate-setting. The only prominent discounts were those providing unlimited travel within a given period for a fixed price. And these fares were intended to attract passengers from other transport modes, not from other bus companies: Greyhound and Trailways typically offered identical terms and honored each other's tickets. The ICC was relatively relaxed about

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approving requests for fare increases—the increases were moderate in a period of low inflation and few passengers complained. Up to 1970 the ICC conducted only two full-scale investigations of nationwide rate increases (the

form that rate changes generally took), and in both cases it gave the carriers the full amount they asked for.

Bus fares were also regulated by state regulatory commissions which, unlike the ICC, typically showed great vigor in monitoring rate increases; state regulators were perhaps eager to protect their own constituents at the expense of outsiders.

Why were interstate bus fares not checked more effectively by competition from other modes of transportation? There were several reasons. Airlines, with their fares still tightly regulated and generally far higher than bus fares, focused on business and time-sensitive travel. And the railroads increasingly viewed passenger travel as an unprofitable nuisance for which they did not care to compete. It should be noted, however, that after Amtrak (the National Railroad Passenger Corporation) was formed in 1971 and began plowing heavy subsidies into the few remaining routes, competing bus companies did begin to set fares on parallel bus routes much lower than elsewhere. The remaining source of competition against buses was the private car. And to all intents and purposes the bus industry simply surrendered to that sphere of competition all potential bus travelers able and willing to drive themselves. The buses were left serving customers who had no real alternative—the poor, the young, the elderly, and the handicapped.

Management Decisions. In addition to entry and rates, federal and state regulators also preempted management decisions on a variety of other matters. The regulators precisely defined each bus route, specifying exactly which highways could be used. They also carefully prescribed the size of the bus and the places where passengers could be picked up or discharged. And in some states, they even specified schedules—how many buses could run on what route and at what times. Little room remained for innovative marketing by industry management.

The Wages of Regulation. The results were pretty much as one might expect. The lack of competition, to start with, severely undercut bus companies' incentives to keep costs down. This was especially true with labor costs. Greyhound, for example, found it convenient simply to share its monopoly profits with labor. The

company claimed at the time of the 1983 strike that its labor costs were 30 to 50 percent higher than those of other major bus companies, and it ultimately extracted from its employees a 15 percent cut in wages and benefits. Trailways, with more decentralized bargaining, fared somewhat better. Its regional subsidiaries typically negotiated independently with various unions, and operated mostly in the low-wage South.

Needless to say, high industry costs were passed through to consumers. Regulatory fare-setting provided at best uneven pressure for cost control. Fares were dramatically higher, for example, on most ICC-regulated interstate routes than on comparable intrastate routes regulated by more aggressive state commissions. In the end, many travelers—those who could—switched to cars and airplanes. By 1977, according to the Census of Transportation, nearly two-thirds of bus passengers were under age twenty-five or over age sixty-four (compared with two-fifths of all travelers) and 60 percent had family incomes under \$15,000 (compared with 40 percent of all travelers). This was but one of the signs of a moribund industry.

The Late 1970s: Change at the ICC

In many respects, the path to bus decontrol was similar to that of airline deregulation. First came a flurry of studies from academics and federal transportation officials. Next, Congress began taking an interest, with committee hear-

ings and reports increasingly endorsing regulatory reform. Then, the White House lent its support and, as it did, the regulators began to implement important reforms on their own. In the bus case, this point arrived in the mid-1970s.

Entry. It was about then that the ICC began encouraging more new entry by approving a larger share of applications. Thus, the number of applications for charter and special authority rose sharply in 1977, as Table 1 shows, and applications for regular-route service followed two years later. Moreover, from 1978 on, applicants were seeking broader geographical authorities with fewer restrictions on routes, stops, vehicle size, and so on—a quality change not captured in the figures. Finally, as of 1978, the number of ICC-regulated bus companies began to increase substantially. This suggests that many of the new applications came from new entrants to the interstate market, including undoubtedly some firms previously confined to intrastate service.

In 1979 the ICC formalized its more lenient entry policy with three new initiatives. First, the commission decreed that only carriers currently operating a given route or carriers that had applied for such authority would be allowed to protest a new application for that route. This reduced protests filed merely to slow the authorization process and discourage would-be competitors.

The second initiative was billed as an experiment in energy conservation. In May 1979 the ICC announced plans to allow existing carriers to offer almost any additional regular-route service they wanted to during the coming summer. To get the new authority, all they had to do was apply—in other words, the “public convenience and necessity” was left to look after itself. The experiment was too short to count as a competitive revolution, but at least a dozen carriers expanded their services for the summertime period, led by Greyhound with nine new routes and Trailways with five. Most notable were the innovative new services targeted at specific passenger groups. One

Table 1
TRENDS IN ENTRY ACTIVITY, 1970–84

Calendar Year	Number of Applications for New Authority ^a			Percent granted ^b	Number of companies ^c (estimated)
	Regular	Charter & special	Total		
1970	—	—	—	—	1,000
1975	—	—	—	—	950
1976	34	108	142	78	1,000
1977	35	150	185	—	1,050
1978	32	144	176	90	1,100
1979	59	180	239	98	1,200
1980	40	170	210	100	1,330
1981	70	430	500	99	1,420
1982	74	392	466	99	1,520
1983	274	1,895	2,169	99	2,300
1984	—	—	—	—	3,000

^aApplications published in the *Federal Register* only. ^bGranted as a whole or in part. ^cICC-regulated only.

Sources: ICC, American Bus Association, Greyhound Inc., and Mandex Inc.

company offered Florida–New Jersey service designed for Spanish-speaking passengers; another offered luxury service (complete with snacks, stereo music, and card tables) to southern Californians bound for Las Vegas.

The third ICC initiative was to cut back on the 1936 *Pan-American* decision. Applicants were no longer required to address whether the proposed service “can and will be served as well by existing lines or carriers.” And burdens of proof were shifted so that the *existing* carrier had to show that the *competitor’s* proposal would impair its operations “contrary to the public interest.”

With these 1979 actions, the ICC officially shifted its emphasis to promoting competition and away from protecting existing competitors. Needless to say, not many established bus companies were pleased at the prospect.

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Rates. At the same time, ICC regulation of bus fares was taking some interesting twists. It was not until 1973 that the commission first rejected—if only in part—an industry request for a nationwide general rate increase. As inflation accelerated in the 1970s, the industry-wide rate bureau, the National Bus Traffic Association, returned to the ICC more and more often to ask for general rate hikes. Table 2 shows the rate escalation that began in 1974. Seeking to avert the need for continual rate proceedings, the ICC adopted a scheme that provided for automatic approval of rate surcharges as fuel prices rose. These arrangements were heavily used in the bus, trucking, and railroad industries after the “oil shocks” of 1974 and 1979–80.

During the 1970s there was also some movement in the opposite direction, toward price-cutting. On occasion, carriers sought selective fare cuts on routes facing competition from Amtrak or from newly deregulated air carriers. (Even these actions generally were taken collectively, through the rate-bureau apparatus, thereby holding competition between

Table 2
NATIONWIDE GENERAL INCREASES IN BUS FARES,
1965–83

Year	Percent Increase		Year	Percent Increase	
	Nominal	Real		Nominal	Real
1965	10	8	1975	10	1
1966	0	–3	1976	9	3
1967	5	2	1977	11	6
1968	5	1	1978	5	–3
1969	10	5	1979	18	7
1970	5	–1	1980	9	–4
1971	5	1	1981	20	10
1972	5	2	1982	8	2
1973	3	–3	1983	10	7
1974	16	5			

Sources: Edward Ramsdell, *An Examination of Interstate Motor Passenger Fare Increase Proceedings*, pp. 1–2; National Bus Traffic Association; ICC.

bus lines to a minimum.) And from time to time, some carriers flirted with fare innovation, offering special discounts for unemployed customers or for trips at off-peak times. The only promotional fare that survived over the long run, however, was the single-price fare allowing unlimited travel for a fixed period.

The Bus Regulatory Reform Act of 1982

The ICC’s deregulatory initiatives in busing (and trucking, too) were not immediately welcomed by Congress. Senator Howard Cannon (Democrat, Nevada) lectured the commission in late 1979 and demanded that deregulation stop until new legislation had been passed. Perhaps for that reason, the ICC’s initiatives languished until Congress came around.

Bus reform could logically have been folded into the Motor Carrier Act of 1980 along with trucking reform. Congress and the Carter administration chose, however, to focus on one industry at a time in order to improve the chances of getting a trucking bill. Once that was done, the Carter ICC turned its attention to pressing Congress for a solidly deregulatory bill, but was unable to finish the job. That left bus industry reform to the Reagan administration. “We see no need,” Transportation Secretary Drew Lewis told a House committee in May 1981, “to continue any Federal economic regulation of the intercity bus industry.” Congress was sympathetic: the new chairman of the Senate Commerce Committee, Robert Packwood (Republican, Oregon), strongly supported economic deregulation, and the Democratic

House continued to go along.

The bus industry was still of two minds on deregulation, but the major players were at least growing fickle. Trailways, which had spurred on the reformist ICC in 1978-79, did a sudden turnaround in mid-1979 when new management took control of the company. About the same time, Greyhound, which had opposed the ICC's reform efforts, also reversed course, apparently having decided to try to bend to its purposes the changes that were surely coming. Most of the smaller carriers were skeptical about deregulation, fearing the results of competition. Whether large or small, however, all bus companies faced the serious problem of overly stringent state regulation of rates, schedules, and route abandonments. Because of the rate controls, many intrastate routes were unprofitable; because of the exit controls, operators could not drop those routes. Thus,

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while federal deregulation would indeed expose the companies to new competition, it could also free them from the coils of the state commissions, provided it preempted state regulation.

Virtually all carriers would be able to benefit from such freedom, but Greyhound could benefit most because it was locked into the greatest number of unprofitable routes. Trailways also suffered from the excesses of state regulation, but it simultaneously benefited from Greyhound's even worse regulatory problems. Trailways' ambivalence about deregulation reflected this apparent quandary.

Not surprisingly, the Bus Regulatory Reform Act passed in September 1982 was a compromise. For the deregulators, the act has relaxed entry controls, freed up rates, and removed some antitrust immunity. For industry, it has provided some of the desired relief from state regulation and substantially preserved antitrust immunity.

- *Entry conditions* have been eased. Applicants for regular-route (scheduled) service no

longer have to prove that their proposed service is "required by the public convenience and necessity." Instead they need only show themselves to be "fit, willing, and able" to provide the service, unless a protester convinces the ICC that the service would be "not consistent with the public interest." This change formally shifts the burden of proof to those protesting the application. In making a public interest finding, however, the ICC must consider whether issuance of the certificate will impair the ability of any other bus operator to continue to provide a substantial portion of its regular-route passenger service.

Those seeking to provide charter and special service, or begin regular-route service to communities that are not currently served, have an even easier time. They need establish only that they are "fit, willing, and able" to provide the service. Their entry is presumed to be consistent with the public interest.

- *Rate regulation* has been greatly reduced. The act establishes a "zone of rate freedom" within which a carrier acting independently may raise or lower fares without ICC approval. That zone is to expand over the three years ending November 1985. The ICC will then lose all authority over rate-setting by carriers acting alone, but it will retain its authority over collective ratemaking—at least over those forms of collective ratemaking that remain legal.

- *Antitrust immunity* has been curtailed. The 1982 act effectively abolishes some types of collective ratemaking by subjecting them to antitrust restraint. Thus, intra-industry discussions of rates on single-line movement (requiring only one carrier) and of rates on joint-line movements are now no longer protected by antitrust immunity.

The industry, however, has won two crucial battles in this area. It retains immunity for intra-industry discussions of general rate changes—such as a 10 percent across-the-board hike on all routes—which are the mainstay of the rate-setting process. It also retains immunity for discussions of promotional or innovative fare changes—such as a thirty-day unlimited travel pass that a group of companies will honor, heretofore the major source of rate competition in the industry. However, the act did refer the question of continued immunity to the Motor Carrier Ratemaking Study Commission (set up by the 1980 trucking act); it

recommended in March 1984 that all immunity for buses be ended by January 1, 1986. If the ICC does not go along with this recommendation, it is to be hoped that Congress will. There certainly appears to be no justification for preserving the arrangement that has allowed the bus lines to engage in collective price-fixing for so long.

- *State regulation can now be preempted* by the ICC in some areas, specifically abandonment and rate decisions. First, if a bus company wants to abandon a route and does not get permission from the state agency within 120 days, it may petition the ICC. Anyone who objects must show that the abandonment would be inconsistent with the public interest or that continuing the service would not constitute an unreasonable burden on interstate commerce. Unless the ICC finds the proffered evidence compelling, it must grant the original company's petition. Second, a similar preemption procedure is established for rate change requests. The ICC must set an intrastate rate if the state does not act on a rate request within 120 days and if the ICC finds that the existing intrastate rate causes unreasonable discrimination against, or imposes an unreasonable burden on, interstate commerce.

The Early Effects of Deregulation

Though the Bus Regulatory Reform Act is only two years old, it already appears to have been highly successful in stimulating competition. New entry jumped explosively in 1983, the first full year of operations under the act. As Table 1 shows, the number of regular-route applications nearly quadrupled that year, and the number of charter and special service applications, the categories now treated most leniently, roughly quintupled. Applicants requested permission to begin serving nearly 55,000 miles of new routes—equal to 20 percent of the industry's pre-1983 route network.

Another aspect of the new entry activity should comfort the critics who feared that Greyhound would monopolize the industry under deregulation. According to the ICC, more than half the applications during the first year (54 percent) were from carriers that previously had not held ICC authority (*The Intercity Bus Industry*, 1984). Furthermore, Greyhound re-

ported in January 1984 that it had filed only sixteen of the 274 applications for regular-route authority in 1983, while the Trailways system had accounted for seventy-seven, or 29 percent.

So far, however, all of this has had little effect on the overall level of interstate fares, perhaps largely because the industry still has antitrust immunity for collective ratemaking in the two crucial areas noted earlier. The most recent general rate increase was 10 percent, secured in March 1983. Nevertheless, some bus company officials see signs that the cartel is breaking down under the weight of entry by new carriers and divergence between Greyhound's objectives and those of other companies. There has been scattered rate-cutting

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on particular routes, primarily by Greyhound and Trailways. Head-to-head fare competition between these two is occurring in the Chicago–Minneapolis, Boston–New York City, and Chicago–Milwaukee markets. In each case Greyhound is matching Trailways' fares on buses that depart at the same time as Trailways', while charging higher fares for other times. Peak/offpeak fare differentials have emerged in Florida and Arizona, where intrastate service was deregulated a year or two before the bus reform act was passed. We can expect this pattern to be followed in interstate service in the coming years.

In the long run, the act's biggest impact on rates may come from the provision that enables the ICC to preempt state commission rulings on intrastate rates. As of November 1984, bus companies had filed forty-seven petitions asking the ICC to set aside unrealistically low state rates. The commission had granted thirty-six and dismissed two for lack of jurisdiction, leaving nine still pending. In addition, the ICC's new power to preempt state abandonment regulation is also offering bus companies some relief. As of November 1984, they had filed thirty-

six petitions asking the ICC to step in to allow them to discontinue service. The ICC had granted thirty-two and dismissed two for lack of jurisdiction, leaving two pending.

Abandonment does not seem to have posed a major problem for consumers, however. The 1984 ICC study found that, as of September 1983, bus companies had eliminated or were proposing to eliminate 1,322 communities from their time schedules. This looks bad, but analysis shows that many of those communities are suburbs of larger cities or communities with

... only one-half of 1 percent of the population of the continental United States lives in the 776 nonmetropolitan communities slated to lose service.

other ready access to nearby bus services. In all, the study found that only one-half of 1 percent of the population of the continental United States lives in the 776 nonmetropolitan communities slated to lose service. The number of people in these communities that had actually used the discontinued service was, of course, much smaller still.

Conclusion

Counting the winners and losers in this seventy-year saga is not simple. The rise of regulation in the 1920s and 1930s surely benefited the regulated railroads, some segments of the bus industry, and some bus company employees. But the industry as a whole plainly languished, and in the end consumers were inadequately served and the stagnation engendered by regulation persuaded even the largest bus operators that change was in order. Deregulation, for its part, has certainly led to some service cutbacks and has forced Greyhound employees to accept lower wages. But it has also enabled bus companies to respond to consumer demands for new services, and the wage adjustments will probably enhance employees' long-run job security.

The bus operators' challenge to the regulated railroads in the 1920s and 1930s surely *should* have been answered by selective deregulation

of the railroads, rather than by regulation of the bus companies. But it wasn't. For fifty years thereafter, regulation fed on regulation. Only in the past decade has the direction finally been reversed. Deregulation in one sector of the transportation industry now drives deregulation in the next. By all appearances the consequences have been very much in the overall public interest. ■

Selected References

- American Bus Association, Statement of Norman R. Sherlock before the Subcommittee on Surface Transportation, Committee on Commerce, Science, and Transportation, U.S. Senate, March 8, 1982.
- Interstate Commerce Commission, Office of Transportation Analysis, *The Intercity Bus Industry*, January 1984.
- Management Analysis Center, Inc., *Deregulation of the Intercity Bus Industry*, January 6, 1981, Washington, D.C.
- Mandex, Inc., *New Entry into the Intercity Bus Industry* (prepared for the U.S. Department of Transportation), July 15, 1981.
- Greyhound Lines, Inc., Remarks of William L. McCracken before the New York City Bar Association, January 19, 1984.
- Pinkston, Elizabeth A., *The Intercity Bus Transportation Industry*, unpublished Ph.D. diss., Yale University, 1975.
- Ramsdell, Edward L., *An Examination of Interstate Motor Passenger Fare Increase Proceedings* (prepared for the U.S. Department of Transportation), Transportation Systems Center, Cambridge, Massachusetts, July 1976.

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Phosphates and the Environmental Free Lunch

W. Kip Viscusi

THE FREE LUNCH is not without its advantages. Consider, for example, a chance to ameliorate an environmental problem without closing a factory or costing the taxpayer any money. Surely this would be one of those "best things in life" that is free. Free indeed. Until, that is, we get around to examining the price.

My target is a modest one: the increasingly popular practice of banning phosphates from laundry detergents. Phosphates can be environmentally harmful, and banning them seems costless because phosphate-free detergents are available. Attracted by this free-lunch rationale, Wisconsin recently reimposed a ban after spirited debate, joining five other states that also have bans in force. North Carolina, Maryland, and Virginia are currently weighing bans. Many other states have at least flirted with the idea at one time or another.

But is a detergent ban really costless? A look at its implications in two states with very different conditions, North Carolina and Wis-

W. Kip Viscusi is professor and director, Center for the Study of Business Regulation, Fuqua School of Business, Duke University. He has testified against the Wisconsin phosphate ban and prepared an analysis of the proposed North Carolina ban for Procter & Gamble Co.

consin, provides a broad perspective on what the free lunch really costs.

Selling the Free Lunch

The environmental rationale for a detergent-phosphate ban is straightforward enough. Phosphates are pollutants because, ironically enough, they are biodegradable. In fact, living things thrive on them. Excessive phosphate levels in lakes and streams promote rapid growth of algae, and so speed up the natural aging process (called eutrophication) of these waterways. The clarity of the water declines, oxygen levels drop, and in extreme cases fish die. The watershed, in short, can become a swamp—rich in primitive plant and animal life, but not at all like the pristine waters that humans prefer to swim and fish.

What could be more appealing than a legislative ban of phosphates in detergents? The payoff: clearer water at no cost whatsoever to the taxpayer. Indeed, some even suggest that the ban offers a financial *advantage* to consumers, because some generic nonphosphate detergents cost less than the brand-name phosphate detergents consumers now buy. The free lunch, in other words, is freer than free. No wonder some state legislators are eager to dine.

But for those interested in environmental protection, not political pabulum, some irritating seasoning comes along with the meal. First, even if the lunch is free, it is not a substantial repast. Detergent phosphates are only small contributors to the overall phosphate levels. Second, the lunch is not free. A fact apparently overlooked by some state legislatures is that consumers adjust their behavior in response to the phosphate ban. And when all is said and done, washing without phosphates is quantifiably more expensive than washing with them.

The Light Lunch

Detergent phosphates, to start with, are only a minor contributor to waterway eutrophication. Homes that have septic tanks (about half in North Carolina and one-quarter in Wisconsin) contribute little phosphate pollution of any sort, because a properly operating septic tank is an excellent phosphate remover. About half of phosphates that *do* reach waterways come from "non-point sources"—fertilizer runoffs

from farmers' fields, for example. The other half, delivered from "point sources" such as sewer systems, originate mostly from human wastes, and no regulator has yet dared to suggest any restriction on pollution of that type. When all is said and done, no more than 12 to 15 percent of total phosphorus in waterways is attributable to detergents.

And this fact, standing alone, ensures that the environmental benefits of detergent phosphate bans are slight. In two states—Wisconsin and Minnesota—the impact of bans was assessed in follow-up studies, and in both instances no significant effect on water quality was found. Phosphate levels *did* decline, but not enough to make any real difference. A one-seventh reduction in phosphorus levels is rarely enough to reduce eutrophication sufficiently to affect the value of water resources for fishing or recreation. And in Wisconsin the costs of removing phosphorus at wastewater treatment plants dropped very little after the ban, while the amount of phosphorus in water leaving the treatment plants declined perceptibly at less than one-third of the plants.

After the Free Lunch

So much for the environmental benefits of a phosphate-detergent ban. What does the free-lunch ban really cost?

The first cost is as might be expected. Detergent manufacturers do not add phosphates for the exclusive and malicious purpose of eutrophying lakes and streams. Phosphate detergents also provide cleaner clothes. Researchers in academia as well as in the detergent and washing-machine industries have confirmed that sodium carbonate, the usual substitute for phosphates, is less effective at doing what a detergent is supposed to do: releasing and suspending soil and reducing water hardness. Within five to ten washings, the differences between colored shirts washed with phosphate or with nonphosphate granular detergents are readily apparent to any casual observer: the buildup of sodium carbonate residue gives the Brand X shirts a faded appearance that goes far beyond the ring-around-the-collar that TV-homemakers have learned to abhor. As a result, consumers discard their clothes prematurely.

To be sure, liquid nonphosphate detergents do better than granular ones, though still not

as well as the phosphate brands. But liquids are much more costly too. The annual cost of switching from the best-selling granular phosphate detergent to the best-selling nonphosphate liquid has been put at \$38 per household.

What is the dollar cost to consumers who switch to granular nonphosphate detergents and then endure laundry that is not quite so clean? For those who just glumly contemplate the results, we can only guess. If they value their wash quality only half as much as consumers who decide to take corrective action, the loss from the phosphate ban is, as we shall see, perhaps \$30 a year.

The \$30 figure is concededly speculative, but the cost of corrective action that other more enterprising consumers *do* take is not. A phosphate ban will impel about 20 percent of consumers to raise water temperature and increase their use of bleach, fabric softener, and wash pretreatments. The resultant annual costs are not trivial—about \$11 per household in Wisconsin, \$8 in North Carolina (weighted by the fraction of households taking corrective action). Moreover, some of the costs of using nonphosphate detergents arise whether or not the consumer takes corrective action. Carbonate buildups from the granular variety cause washing-machine repair problems and related consumer complaints to be much greater in phosphate-ban states and repair costs to be higher. Based on an appliance industry study, I estimate the present value of annual repair costs to be \$12 per household in Wisconsin, \$5 in North Carolina. Finally, carbonate buildup on clothes increases fabric wear. Drawing on results obtained by consumer science research-

ESTIMATED PHOSPHATE REDUCTION COSTS
(dollars per household per year)

Method	Wisconsin	North Carolina
DETERGENT BAN		
Energy and laundry additives	11	8
Increased machine repair	12	5
Fabric wear	22	10
	45	23
Laundry time*	4	4
Decreased wash quality*	30	30
Total	79	57
CHEMICAL TREATMENT		
Total cost	1.50	24
Unit cost (based on level of phosphate removed)	1.50	3-4

*Cost estimates for these items are more speculative.

ers at the University of California, I estimate these annual costs to be \$22 per household in Wisconsin, \$10 in North Carolina. The bottom line: the cost of actual out-of-pocket outlays and after-the-free-lunch corrective action averages \$45 a year for Wisconsin households and \$23 for North Carolina households. (The cost differences between the two states derive from differences in energy costs and water hardness.)

There's more. Using laundry additives requires extra laundry time, and phosphate-free detergents entail extra ironing as well, because they damage the permanent press qualities of fabrics. Putting a price on this is difficult. One minute a week at a price of \$5 per hour should, however, provide a conservative estimate of the annual lost-time cost—\$4 per household.

Now it must be conceded that these several costs, summarized in the table, are not likely to bankrupt the average American household. But the advocates of a detergent-phosphate ban miss the mark when they assert that the costs do not exist. Perhaps the implicit assumption is that consumers don't "really" care about cleaner wash, fabric wear, time spent ironing, and so on. But they manifestly do. Detergents containing phosphates are the dominant consumer choice in markets where they are available. After Wisconsin's ban came into effect there was a rapid upsurge in complaints to operators of coin laundries. Washing machine manufacturers also witnessed an increase in complaints about wash quality. Some consumers understood the real cause of the problem and crossed state lines to stockpile phosphate detergents. Prisons and commercial laundries took the more direct route of obtaining statutory exemptions from the ban.

The Cheaper Lunch

When the free lunch turns out to be nothing of the sort, we should inquire if there might be a cheaper one—most particularly, a cheaper one that offers better fare. With phosphate pollution, as luck would have it, there is.

The chemical treatment of wastewater can eliminate 90 percent of phosphate levels in sewage—about six times as much, in other words, as a phosphate-detergent ban. And the cost is comparatively modest. In states such as North Carolina, which have not yet invested in central wastewater treatment facilities, the an-

nual cost would be about \$24 per household. In Wisconsin, where the needed facilities are already in place, the cost of achieving the same phosphate reduction as a phosphate ban would be about \$1.50.

As the table reveals, these figures suggest that wastewater treatment in Wisconsin can remove as much phosphate as a phosphate-detergent ban at about 1/30th of the readily quantifiable costs of the ban. In North Carolina there is a six-fold improvement at about the same price as a phosphate-detergent ban. A very rough extrapolation from the North Carolina and Wisconsin experiences indicates that the national cost of wastewater phosphate treatment might be about \$1 billion, while the consumer cost of a phosphate-detergent ban would be about \$2.8 billion. In Wisconsin, North Carolina, and nationally, the comparative cost advantages of wastewater treatment is perhaps twice as large again if one also takes into account what I have so far omitted—the costs of increased laundry time and decreased wash quality. And the comparative cost advantage of wastewater treatment increases even more when one looks at what really counts—the dollar cost per unit of pollution removed.

Why then does the expensive free lunch of a phosphate-detergent ban remain so popular? The reasons are not hard to find. The cost of wastewater treatment facilities are visible, and therefore are political as well as economic. By contrast, the costs of a phosphate-detergent ban are not easily attributed to the ban, so the political costs are correspondingly slight. In addition, a ban hits that most popular of political targets, the out-of-state corporate villain. Direct controls on a much more important source of phosphates—the fertilizers used by in-state farmers—would reduce phosphate levels more effectively but at a far higher political cost.

Yet the facts are clear. In the case of phosphate detergents, the "defect" attacked by the ban is in fact a product attribute that is significantly valued by consumers, and for good reason. Banning phosphate detergents is "free" only to the legislator worried about the next election. Treatment plants do not offer any free lunch either, but they do achieve much more pollution control at less or, at worst, comparable cost. And *that*, for once, is indeed pure gravy. ■

The I Ching of Acid Rain

Peter Huber

(Continued from page 20)

dred. But if percentages had been stated instead in terms of the neutrally defined eastern area in which acid rain falls, the OTA-TIE percentage would probably have been lowered by a factor of five or more.

More fundamentally, the measure of the "extremely vulnerable" or "already acidified" water area depends entirely on how fairly the "brand X" referent was chosen. That, in turn, depends on our very poor understanding of what makes areas "similar" for purposes of acid-alkali bookkeeping. Geology is certainly important, and the TIE study attempted to match the two regions it compared on that basis. But we can say with confidence that two regions are similar in all important respects other than acid rain deposition only if we fully understand all the important contributors to the acid-alkali economy. Identifying truly similar regions, in other words, depends on our ability to count the acid and alkali beans in a given ecological bag. And as already noted, that is a task well beyond current capabilities. Numerous variables other than geology may contribute to the acid balance, and no one has a clear idea of precisely what they all are, or just how important each one is.

Predicting the future. When we lack a clear picture of how acidified we are today, predictions about where we will be tomorrow start at a certain disadvantage. This has not, however, deterred people from trying to make them. The easiest (and therefore most popular) approach has been to set about determining how many lakes are "sensitive" or "vulnerable" to further acid precipitation. The technique is simple enough—current levels of alkalinity in lakes are measured, and the lakes with low levels are declared to be sensitive.

This type of investigation formed the basis of the recent OTA-TIE study, which concluded:

About 17,000 lakes and 112,000 miles of streams lie within . . . sensitive areas. As a "best guess," about half of these lakes and streams have such limited ability to neutralize acid that they will acidify if enough acid pollutants are deposited.

Once again, one may pass over the percentage figure ("about half") as a pure artifice of TIE's

own selection of what region to study. Much more dubious is the definition of just which bodies of water are "critically acidified" or "sensitive" to further acid deposition. Recall that man-made emissions deliver something on the order of 0.1 ounce of SO_2 per square yard of surface a year. If that surface is a lake, the TIE study labels it sensitive to the acid deposition if about two feet of the lake's depth currently contain insufficient alkali to neutralize that equivalent amount of acidity.* The method is delightfully simple. Too simple.

To begin with, the two-foot figure seems more than a little arbitrary. Why not two inches or twenty feet? More important, however, is that water alkalinity levels tell us absolutely nothing about the condition of the surrounding soil, bedrock, and chemistry of the ecology, and all scientists agree that those factors play a central role in the acidification dynamic. Lakes collect water not only from direct precipitation on to the lake's surface, but from the entire local watershed. Total acid deposition per unit area of lake will thus be much larger than that from rainfall directly on to its surface—but the alkali available to neutralize the acid can also be vastly larger than what is already in the lake.

In short, TIE's "best guess" of how many lakes will acidify if "enough" pollutants are deposited is certainly a guess; "best," no doubt, is an assertion of sincerity and good faith, but not an indication of good or even adequate underlying science. To be sure, it may be extraordinarily difficult to make a better guess. But a mechanical measurement of current alkalinity levels in the water nevertheless tells us very little. The crucial questions are where that alkalinity came from, how much more is available, or where alkali levels will go if acid depositions continue. Those questions are simply not answered or yet answerable. "All is flux," wrote Heraclitus two thousand years ago, "it is not

*The study does not use the two-foot figure as such. Instead, it labels a lake "sensitive" if the alkalinity concentrations fall below 200 micro-eq/l. A two-foot depth of water contains about 500 l/m² of surface. Combining the two numbers, the lake is labeled sensitive if a two-foot depth contains alkalinity of less than 100 meq/m². And 100 meq/m² is very roughly the alkaline equivalent of about 0.1 oz. of SO_2 per square yard. I use yards, ounces, and feet of lake depth not because these are the conventional scientific units but because they are likely to be more familiar measures to most readers. My numbers are all very approximate, and deliberately so.

possible to step twice into the same river." The same is true for an acid lake in 1984. Today's state of the lake is a poor predictor of tomorrow's conditions, most especially when the prediction is that they will be very different.

Environmental Impacts

The last and surely most important question is why anyone cares whether rain, lake, or soil acidity is changed. Five categories of risk from acidification are usually flagged for closer attention.

Aquatic resources. If acid rain does culminate in the acidification of water systems, there is little doubt that at least some environmentally adverse consequences will follow. Fish and other biota do not take well to acid lakes. Acidity can disrupt the fish's own internal chemistry to the point where it is unable to function, or may injure fish eggs and fry. Acidification can also mobilize metals such as aluminum from the soil and bedrock, and these can also be toxic to fish. Of particular concern is "acid shock" from high concentrations of pollutants delivered suddenly into lakes during snowmelt. There is, in short, a reasonably firm consensus that if wide-scale acidification of lakes and streams occurs, it will have significantly adverse ecological impacts. These, in turn, can adversely affect sport fishing, tourism, and other economic or aesthetic values.

Forests. The second large ecological issue concerns the impact of acid rain on forests and woodlands. The Electric Power Research Institute (EPRI)—an institution funded by electric utilities—notes:

Trees, primarily conifers, have been damaged or are dying at unusually rapid rates in recent decades in certain areas of the northeastern United States and Europe. According to quantitative documentation, red spruce have declined atop summits in Vermont's Green Mountains, a decline that has also been observed in New Jersey's Pine Barrens. And in West Germany, large areas of Norway spruce and fir have died or appear to be injured. What troubles researchers is that all these areas receive large amounts of acid rain and other pollution.

It is not difficult to postulate mechanisms by which acid deposition could affect forests—

both favorably and unfavorably. Some forests are sulfur-poor, so SO₂ deposition there may promote growth. In others, acid deposition may remove nutrients stored in leaves or in the soil. Most forest soils exhibit no deficiencies in the types of nutrients that acid deposition would leach out, but a study of the Adirondack Mountain forest suggests that some northeastern forests are notable exceptions. Finally, acid deposition may mobilize toxic metals such as aluminum that are also harmful to trees.

But both EPRI and OTA agree that there are other possible causes for the impacts on forests that have already been observed, and that the link between acid deposition and forest damage is speculative in all but the most severe cases of acid deposition. (The widely discussed damage to the forests in Germany is associated with exceptionally high levels of SO₂ loading.) In the vast majority of instances, acid rain, ozone, heavy-metal deposition, drought, severe winters, or a combination of these factors are all possible causes of the observed forest damage. OTA concludes:

To summarize the potential for long-term forest productivity effects from both acid deposition and gaseous pollutants, at the present time OTA can state only that such interactions might occur and that their probability of occurrence is greatest in . . . regions of the Eastern United States. . . . The mechanisms involved and the relative importance of those mechanisms to forest growth must be studied further in order to better describe and eventually quantify these potential effects.

Agriculture. No direct link between acid rain and crop damage has been established in the field. The evolving consensus has been summarized in the 1982 annual report of the National Acid Precipitation Assessment Program: "The most consistent conclusion to be drawn from agricultural research at all scales and with all species has been 'no effect' at current average ambient pH levels of 4.0 to 4.2." This is not surprising in light of the high levels of acidic fertilizers and alkaline lime that farmers regularly add to their soils.

Materials. Sulfur dioxide and other air pollutants can corrode a broad range of materials, including stone, metals, textiles, leather, and paint. Damage can occur to both culturally significant statues, structures, and monuments,

and to routinely used construction materials. The damage is qualitatively similar to that resulting from natural weathering, so estimating its extent and severity is very difficult.

One recent study (produced by Mathtech Inc. for EPA's Office of Air Quality Planning, 1982) estimated that a 30 percent reduction in current ambient SO₂ levels would produce about a \$300 million savings annually for about half of the households and a tenth of the production sector. The calculation as it stands contains large uncertainties; it cannot, in any event, be extrapolated to the nation as a whole. Apart from this study, there is abundant anecdotal and qualitative information about the potential for pollution-induced damage, but almost nothing that is reliably quantitative.

One might list, along with materials damage, impairment of visibility. Once again, this is not a problem of acid rain proper, but is linked to its precursors, SO₂ and sulfate. There is little doubt that pollution impairs visibility.

Human health. In high enough concentrations, sulfur dioxide itself (as distinguished from acid rain) may have harmful health effects, particularly to members of the population already suffering from respiratory disease. Some researchers have found a significant association between SO₂ levels and mortality, though others conclude there is no substantial link. But in any event, health problems from SO₂ itself are already addressed through EPA's ambient SO₂ standard and are quite distinct from the issue of acid rain.

Sulfuric acid and ammonium sulfate particles, the atmospheric byproducts of SO₂ chemistry that *are* part of acid rain, could conceivably have independent health effects of their own. It is also possible that these pollutants act synergistically with others, such as metallic ions, nitrates, and fine soot particles, to cause observable health effects. There is, however, no direct evidence showing any detectable human health effects from the highest concentrations of sulfuric acid or sulfate particles presently found in the environment.

Acidic water can dissolve aluminum, copper, lead, mercury, and other toxic metals from the soil, and from plumbing systems. While the chemistry suggests that a problem here is conceivable, once again no direct link between drinking water contamination and acid rain has been established. In any event, the acidity

of municipal water systems can be monitored and corrected quite easily.

Uncertainty and Ideology

All of which leaves us nowhere in particular. While it is not difficult to describe acid rain's possible environmental consequences in the abstract, it is enormously difficult to assess them quantitatively. There is certainly no scientific consensus on how widespread, imminent, or irreversible the ecological damage might be.

Much of the current alarm about acid rain is voiced in the pseudo-science of "maximum conceivable harm" or some synonym thereof. This is a weapon that has been used to devastating effect against the electric power industry at least once before, in the attack on nuclear gen-

... "maximum conceivable harm"
measures nothing but the fertility of
the human imagination.

eration. One must keep in mind, however, that "maximum conceivable harm" measures nothing but the fertility of the human imagination. The maximum conceivable accident in a single bathtub is one in which the citizens of the nation line up, fall in, and drown, one at a time. This particular terror, "conceivable" though it manifestly is, has yet to attract widespread regulatory attention, and perhaps for good reason.

When we cannot say with confidence *whether* science supports regulatory action, there is bound to be more than a little disagreement over *how quickly* regulatory action should be taken. Damaged forests and lakes certainly do not recycle quickly, at least not without expensive help, but it is most uncertain whether we are in fact on the brink of any widespread injury from acid rain. Those who adopt the most pessimistic interpretation of the available scientific evidence readily conclude that prompt reductions in SO₂ emissions are urgently required; even maintaining emissions at current levels will lead to serious cumulative damage. Those who read the evidence in a more optimistic light can conclude, equally readily, that if the acid rain problem exists at all, it is

not a problem that calls for hasty change in the regulatory climate.

Even more uncertain is how quickly ecological benefits would be realized if emissions were reduced. This last scientific question of the acid rain debate is of considerably more than academic interest, though it is often given little attention. If a new regulatory initiative were followed by prompt, visible, improvement in environmental conditions, there would, of course, be little more to debate. But, as Chris Whipple of EPRI has pointed out, the *failure* to see prompt environmental improvement following the implementation of a new regulatory program could be interpreted as proof that either (1) the controlled sources were not the cause of the problem or (2) a larger control program was needed. Undoubtedly a certain sense of *déjà vu* would accompany this dilemma if it were to arise.

Why, one might ask, has acid rain generated such large amounts of political heat from so little scientific light? Environmentalists, of course, have little affection for the coal economy and much aversion to air pollution. And Canada and a number of northeastern states are seriously and legitimately worried about the environmental effects of acid rain. Their concern is greatly amplified by the perception—not fanciful, but not solidly anchored in science either—that it is not primarily *their* acid rain (which conveniently blows out over the Atlantic) but rather acid rain from numerous power plants in the Midwest that is causing the problem. Environmental ideology and inter-regional rivalries of this character strongly affect where and how dogmatically most of us come down on the unresolved scientific questions.

II. THE REGULATORY OPTIONS

The gravity of the acid rain problem—a measure of the potential benefits in a regulatory calculus—involves scientific questions that are far from settled. But if we *are* to regulate acid rain, a largely distinct question is how we should set about doing so. Some of the technical aspects of the regulatory options are mundane enough. But the policy planner can nevertheless take delight in the rich range of opportunity for regulating wisely or foolishly, frugally or profligately, progressively or so as to entrench the acid rain problem forever.

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Tear down the Stacks?

Let me start where no one else seems willing to begin. The acid rain controversy is fueled largely by inter-regional and international finger-pointing. So why not bring the nub of the dispute back home? The average height of utility smokestacks has tripled in the 1970–84 period, largely to meet EPA “ambient air standards” by dispersing pollutants very broadly rather than by curtailing their emission. We *could* just cut the tall stacks back down to size. Short smokestacks keep pollution closer to home, where, in fairness, it would seem to belong.

I recognize, however, that shorter smokestacks are not high on anyone else’s list of preferred regulatory options. Moreover, dilution may in fact be a very good control strategy. As countless cancerous rats might attest, many things are harmful in large concentrations but innocuous or even beneficial in smaller ones. It would be a pity to tear down the stacks if the result were an increase in local harm greater than the offsetting benefit at remote locations.

Tall stacks, it is therefore plain, are likely to remain tall. But Congress did respond to the tall-stack problem in 1977, so in the future at least, dilution is likely to be used less often as a strategy for attaining local ambient standards. The Clean Air Act Amendments of that year deny polluters emission control “credit” for the locally favorable effects of smokestacks built taller than would be dictated by “good engineering practice.” Prodded by a federal court order, EPA recently proposed new rules that will require some tall-stack emitters to add pollution control equipment or switch to cleaner fuel. The rules are expected to eliminate between 0.8 and 2.8 million tons of SO₂ emissions a year, costing industry from \$0.9 to 4.6 billion in capital expenditures and from \$0.3 to 1.4 billion in annual operating expense.

Control Possibilities and Prices

In the larger picture, however, tall stacks are only a regulatory idiosyncrasy. And so we turn to emission controls. Sulfur dioxide can be contained or controlled at almost every stage of the fuel cycle—in the choice of fuel at the

outset, during the combustion process, or after deposition in a lake or forest.

Changing fuel. The first possible answer to excess emissions of SO₂ is to work with a lower-sulfur fuel. Natural gas, hydroelectric power, uranium, and most oils are all obvious candidates. But natural gas is expensive, and its use for electric power generation has been discouraged by federal law. Oil is expensive too. Hydroelectric power is not much of an option in the flat Midwest where SO₂ emissions are highest. Uranium is the sulfur-free fuel most engineers would probably select as the alternative of choice, but it too is believed by some to entail unacceptable environmental consequences.

This would appear to leave only coal as the main short-term alternative fuel to coal—a distressingly narrow range of choice.

This would appear to leave only coal as the main short-term alternative fuel to coal—a distressingly narrow range of choice. Still, some coals are much cleaner than others, and coal switching can cut emissions considerably. But clean coal sells at a premium price, and the premium would be likely to rise if regulatory requirements were tightened. Coal switching can also cut plant efficiency, because boilers are often designed to perform optimally only with fuel of particular quality. One broadly cited estimate (by PEDCo. Environmental Inc. for the Department of Energy) suggests that switching coal to cut annual SO₂ emissions by 6 million tons would cost utilities about \$1.4 billion a year (1982 dollars), or about \$250 per ton of SO₂ removed. Coal switching also entails indirect costs for producers of dirty coal in northern Appalachia and the Midwest, at the same time that it represents a boon for producers of clean western coal.

A separate fuel-switching option is to buy dirty coal and clean it before burning it. The technology of physical coal cleaning is already available and in use. A Department of Energy study estimates that coal cleaning could yield a 1.5 million ton additional reduction in SO₂ emissions, at about \$580 per ton of SO₂ removed. Other coal-processing options, including chemical cleaning and coal gasification, are

also under study, but not yet at the stage where they can be priced or quickly put into effect.

Combustion and emission controls. The next possibility is cleaner burning. Several types of potentially efficient and cheap new technologies—the limestone multistage burner and the fluidized bed combustor—are under development, but none is yet in widespread commercial use. As a result, no very reliable estimates of their costs are available. One EPRI publication suggests that emission reductions might be achievable at about \$800 per ton of SO₂ removed.

Scrubbing flue gases comes next in the chain of control possibilities. The smoke from the burner is sprayed with large volumes of an alkaline water-limestone mixture, the sulfur is chemically captured, and the large volumes of scrubber sludge are carted off to landfills. The technology is already well developed—EPA requires scrubbers in all new coal-fired power plants—but costs are high. Up front capital costs for a mid-size plant are typically in the range of \$80 to \$200 million—with higher unit costs for attaching scrubbers to smaller boilers. Scrubber operation is also expensive. Typical bottom line costs are in the range of \$700 to \$1,000 per ton of SO₂ removed.

And this brings us to a critical variable that cuts across all the regulatory options—the question of timing. Retrofitting scrubbers on to old plants—a favorite quick fix in some quarters—costs 10 to 40 percent more than building scrubbers into new plants as the old ones are retired. And a uniform, do-it-now, scrubber prescription also precludes the phased introduction of nonscrubber control technologies that are potentially cheaper and even cleaner. The owner of an old power plant with a new scrubber, like the owner of an old car with a recently installed new transmission, has a strong incentive to nurse the plant along for as many more years as possible, to recoup the investment that has been made. One cannot place any certain figures on the price of a hasty or prescriptive cleanup program, but EPRI has estimated that savings of \$4 billion a year are possible under a regulatory program that encourages the use of new technology and permits a phased reduction in emissions.

Watershed management. Once SO₂ goes up the stack, little more can be done until it comes down again. But acidity can be neutralized in

lakes themselves, or environments can be managed to cope with higher levels of acidification. Sweden, for example, has conducted an intensive liming program for several years, in which large amounts of crushed limestone or lime are added to the water or applied to the adjacent soil or forest. Smaller scale liming has also been attempted in Norway, Canada, and the United States.

The costs of liming lakes in New York have ranged widely from \$30 to \$300 an acre. A recent study placed a \$2 to \$4 million a year price tag on liming several hundred acidified lakes in the New York Adirondacks. This is very cheap as acid rain solutions go. But liming is a simple and straightforward solution to precisely the same extent that acid rain is a simple and straightforward problem—which is not at all. Nevertheless, if lake acidification ultimately proves to be a largely localized and uncommon problem, liming may still prove to be a viable control option. The introduction of acid-resistant breeds of fish is yet another possible response to low levels of acidification.

The Economists Dream On

The variety and complexity of the emission- and damage-control alternatives suggests that choosing among them is a task that is much too delicate to be resolved efficiently by the visible hands in Washington. If there is to be regulation, perhaps the market might play some small role in shaping its final form.

Suppose that Congress in its wisdom should decide to shoot for what has already been proposed in the most ambitious bills—a

10-million ton cut in annual SO₂ emissions. The accompanying table contains OTA's (in my view optimistic) estimates of total and marginal costs of a least-cost emission control program. The marginal cost for the last million tons of SO₂ emission reduction would be in the vicinity of \$1,000 per ton. This pleasantly round figure therefore represents a reasonable guess about the "right" price to place on SO₂ emissions under a tax-incentive regulatory scheme.

... there is no doubt that congressional enactment of a pollution tax is about as likely as a visit from the Tooth Fairy. . . . But the idea of an emission tax nevertheless provides some food for thought.

Now there is no doubt that congressional enactment of a pollution tax is about as likely as a visit from the Tooth Fairy. Hostility to emission taxes runs deep in industry as well as among many environmentalists, and with enemies as varied as that, who needs the friendship of a few economists? But the idea of an emission tax nevertheless provides some food for thought.

The tax would put at least one emission control strategy into effect within days of its enactment—years faster, in other words, than scrubbers, and months faster than coal-switching alternatives. Utilities currently use "economic dispatching" of power supplies—that is, as daily demand rises and falls, cheaper generating units are brought on line first, and turned off later, than more expensive ones. But dirt, under the current regulatory structure, is cheap, so dirtier units are often used in preference to cleaner ones. The obvious alternative is to use the cleaner units first and most, the dirtier ones last and least. An emission tax immediately encourages this "environmental dispatching" option.

More important is that a regulatory tax surely promises much more environmental improvement than any prescriptive program. Avoiding taxes, as most of us discover every April, brings out the

COSTS OF REDUCING SO₂ EMISSIONS IN THIRTY-ONE EASTERN STATES
(costs in 1982 dollars)

Allowable Emissions (lb. SO ₂ /MMBtu)	Emissions Reduced (million tons SO ₂)	Total Cost (\$ billions/yr.)	Average Cost of Reductions	Costs per Marginal Ton Reduced
2.5	4.6	0.6–0.9	170–240	320
2.0	6.2	1.1–1.5	200–280	440
1.5	8.0	1.8–2.3	260–330	700
1.2	9.3	2.6–3.4	310–400	740
1.0	10.3	3.2–4.1	350–440	830
0.8	11.4	4.2–5.0	400–480	1,320

Note: Estimates exclude costs to meet current state implementation plans or to offset future emissions growth; they assume that each utility chooses the most cost-effective control method.

Source: Office of Technology Assessment, *Acid Rain and Transported Pollutants*, p. 169.

very best and most creative that human ingenuity and cupidity have to offer. The scrubber-only regulatory proposals recently considered in Congress would have cut off 10 million tons of annual emissions in a one-shot, unimaginative solution—and thus would have left 17 million tons entirely untouched. An emission tax, in contrast, would maintain a steady pressure for more control, even while it permitted regulatees to select control strategies efficiently in time. A tax has the added advantage of fairness, since it could be assessed not only against giant electric utilities—everybody's favorite deep-pocket target—but also against other polluters who account for almost one-third of total SO₂ emissions.

To be sure, an emission tax also has some potential problems. First, emissions must be monitored. This is administratively less convenient than supervising the one-time installation of a scrubber. But with potential savings from efficient regulation in the billions of dollars it would certainly be possible to afford the necessary inspectors and monitoring equipment.

A second possible difficulty concerns managerial psychology. Most utilities are regulated monopolies, reimbursed by ratepayers on a "cost-plus" basis. It is conceivable that industry executives would simply pass the emission tax on to their consumers and worry no more about acid rain. But not likely. Public utility commissions do not pass through to ratepayers costs incurred through "imprudent" management choices. If cost-effective control strategies are readily available, pollution as usual would surely be discouraged.

The real difficulty with a pollution tax is choosing the "right" marginal rate. All one can say is that this would be much less of a problem than setting out a command-and-control regulatory program in all its detail. And readjusting a poorly chosen tax would surely be much easier than excising 1,000 pages of prescriptive regulation from the *Federal Register*.

Where's the Pork?

The emission tax is surely a thing of market beauty, but it is also political poison. The first problem with a \$1,000-per-ton tax on SO₂ would be too much revenue—about \$20 billion a year, from the residual 20 million tons or so of emis-

sions not eliminated. Spread over 50 million eastern and midwestern households the resultant rate shock (partly in consumer electric bills, and partly in increased costs for goods manufactured by electric-intensive industries) would be in the range of \$400 per year—this in addition to \$150 or so attributable to emission-control expenditures by utilities.

But the emission-tax revenue could, of course, simply be returned to the utilities, and hence to the consumers. The refund obviously would not be in proportion to the amount of SO₂ each utility emits, but rather in proportion to the amount of electricity each generates. The marginal cost of SO₂ emissions would then remain close to \$1,000 per ton, while the industry-wide average cost of generating electricity would not increase at all. Dirtier-than-average utilities would simply subsidize cleaner ones, and inter-utility environmental dispatching would be encouraged.

The regulatory burden would nevertheless still fall particularly hard in the Midwest, where SO₂ emissions are highest. And the evolving consensus seems to be that because acid rain falls equally on the just and unjust, the just must share equally in the cost of doing some-

... the evolving consensus seems to be that because acid rain falls equally on the just and unjust, the just must share equally in the cost of doing something about it. ... [even though] it is the unjust who earlier absconded with the umbrella.

thing about it. This notwithstanding the fact that it is the unjust who earlier absconded with the umbrella. It may seem perverse to ask the consumers served by clean utilities to subsidize cleanup efforts by dirty ones, most especially since clean generation already (not surprisingly) costs more. But if we should decide to regulate, Congress would probably insist that the polluted pay along with the polluters. One proposal has been a tax on eastern non-nuclear electricity consumption to create a trust fund for buying scrubbers.

But why be so specific about how the money is to be spent? Even under a "polluters-are-paid" principle, the inefficiencies of command-

and-control regulation could be avoided. The mirror image of the emission tax is a subsidy for not emitting. If each utility's 1985 emission levels were grandfathered onto the books, a \$1,000-per-ton payment for emissions reduced would create efficient pollution-control incentives almost as well as a tax on emissions at the same rate. (But not quite as well. A tax on pollution emitted would increase the price of electricity and so lower electricity consumption and SO₂ emissions more than a subsidy for pollution reduction at the same marginal rate.)

Regrettably, the baksheesh would probably not stop even here. Any incentive structure that encourages cost-efficient reductions in SO₂ emissions will end up weighing heavily on eastern producers and miners of dirty coal, because burning clean coal is by far the cheapest way to limit emissions. Which means that if polluters *are* to be paid, the miners of dirty coal will also be in the receiving line.

Once again, the money can be raised from whomsoever Congress thinks should pay—most likely all eastern consumers of fossil-generated electricity. The question then will be *how* to deliver this particular kickback. The expensive way is to insist on the use of scrubbers as the means for controlling emissions. We already do this with new power plants, in a monstrosity of regulatory policy crafted by a bizarre legislative alliance between environmentalists and dirty-coal producers. This indirect form of subsidy has worked all right, but, as Paul Portney has calculated, at a trifling price of \$320,000 a year for each coal miner's job protected (*Regulation*, November/December 1982).

Surely the miners and producers of dirty coal can be bought off for somewhat less. The key is to pay them in cash, rather than in the specie of command-and-control regulation. Once again, it may be perverse to reward people for not doing something judged to be anti-social—the very idea gives a tantalizing new meaning to “wages of sin.” Be that as it may, it is certainly insane to spend more for the purpose than is absolutely necessary.

The Regulation-as-Usual Impasse

Whether it takes the form of efficient tax or inefficient prescription, direct regulation of coal-fired power plants can undoubtedly curtail some part of acid rain emissions. Some part in-

deed—a relatively small one. Even at \$5 to \$10 billion a year, the most ambitious proposed programs would leave almost two-thirds of current SO₂ emissions untouched. Regulation-as-usual will thus, more than anything else, largely preserve and entrench the status quo—with at least 17 million tons of SO₂ still emitted into the atmosphere every year.

With electric power, in other words, the promise of more regulation has finally reached a dead end, a result that should be wholly unsatisfactory to *both* environmentalists and electric utilities. How do we come to find ourselves in such a fix?

Nature, to start with, has been less than kind. The sulfur in coal most undoubtedly is of natural origin, derived either from coal's vegetable precursors in the Carboniferous period of this continent's history, or from the geological habitat these plants selected for their anaerobic graves. Technology is also less than perfect. Electric power plants (or even electricity conservation measures) of any description always entail environmental consequences of some type: perfect cleanliness, like perpetual motion, still eludes us. But the regulatory system itself can also claim some large measure of credit for bringing us to where we are now—glumly contemplating a gigantically expensive dose of regulatory medicine that promises, at best, only a one-third cure.

Our electricity supply, it must be remembered, was not always so tightly linked to coal. Electricity can also be generated using oil, gas, hydroelectric power, or nuclear fuel, or even (conceivably) some of the “renewables” such as solar or wind power. There is, in addition, the option to stretch what we have further through efficient use and conservation. But in recent years, ample reserve capacity and modest demand have impelled our legislators and regulators to say no to almost everything but coal. We reject natural gas as an electric generator fuel because it may be in short supply for home heating. We reject oil because its use increases our dependence of foreign supply. We reject hydroelectric power because it floods valleys or threatens anadromous fish, the furbish lousewort, or the snail darter. And we reject uranium because Jane Fonda and Meryl Streep tell us it's too dangerous.

Which may explain why about all that is left and economically feasible in 1984 is coal;

after all, the “no” pigeons having been shot from the sky, the “yes” pigeon finally came home to roost. But coal, it would appear, may mean acid rain. And acid rain may prove for the environment to be the least acceptable choice

The environmental-regulatory complex . . . spent the last twenty years forcing utilities to use what may prove to be the most environmentally damaging generating technologies, and is now exhorting them to spend the next twenty crafting a silk purse of clean electricity from the sow's ear of dirty coal.

of all. The environmental-regulatory complex, in short, spent the last twenty years forcing utilities to use what may prove to be the most environmentally damaging generating technologies, and is now exhorting them to spend the next twenty crafting a silk purse of clean electricity from the sow's ear of dirty coal. When you see environmental regulation of this character, reach for your gas mask. And grab your wallet.

The Deregulatory Option

There are limits to what can be achieved through regulation. This is a lesson that has been learned the hard way once before. Five hundred years ago environmental regulators made it a capital offense to burn coal in London. It was already clear then that coal burning emitted noxious fumes, whereas there was abundant “clean” wood available. In the end, of course, people switched to coal anyway, once England's forests had all been consumed for fuel. The forests never returned.

Today, ironically, it is the continued use of coal that threatens forests on this side of the Atlantic. All of the extant acid rain proposals accept the perpetuation of a coal-dominated electric economy, and all provide for still more regulation of coal furnaces. What is most striking about the numbers in these proposals is that even the most ambitious offer so very little. As noted earlier, the prescriptive, scrubber-based scheme for controlling acid rain is (at its most optimistic) a 10-million-ton bandaid on a

27-million-ton per year SO₂ hemorrhage. If environmental impacts of acid rain are cumulative, as many environmentalists suggest they are, the scrubber-retrofit proposal is a fraud that would only postpone, for a few years, the inevitable environmental catastrophe they expect.

There is another way to curtail acid rain—less visible than a new, multi-billion-dollar regulatory program, certainly less dramatic, but in the longer term more effective. In a comprehensively regulated industry such as electric power, where all the statutory presumptions are against new technology and new generating capacity, far-reaching change demands a selective *deregulation* of environmentally preferable alternatives.

Federal regulatory reform could do much to encourage the use of cleaner fuels, including gas, uranium, and water. State public utility commissions have the power in their hands to facilitate the capital turnover needed to speed the retirement of old (dirty) plants and their replacement with new (cleaner) ones. The courts, by curtailing the opportunities for litigating every new initiative to death, could help restore to the electric power industry the confidence that is needed to encourage technological experimentation and change. Technological change and capital turnover are inseparably linked to environmental protection; only a regulatory system receptive to the former can achieve much with the latter.

Better generating technologies are in fact already available or on the engineering horizon. Limestone injection and the fluidized bed furnace hold out the promise for both cleaner and more efficient coal combustion. The helium-cooled fission reactor is essentially incapable of meltdown, and so might displace a good bit of coal while answering some of the current concerns about water-cooled nuclear power systems. There are still possibilities for more (and more efficient) development of hydroelectric power. Safer and more effective means of conservation can also be found.

None of these solutions is environmentally perfect, and many have yet to be proved in commercial operation. Some will surely not live up to environmental or economic expectations when they are tried. But if we confront acid rain's uncertain science honestly, we must recognize that there is no real choice but to seek

out and experiment aggressively with these new alternatives. If acid rain *does* present a real and long-term problem, we must search for equally real and long-term regulatory solutions.

III. DRAWING THE YARROW STRAWS

In the end, the scientific side of the coal-sulfur economy and the existing proposals for new regulation must of course be weighed together. Where does the cost-benefit balance come out? It is still impossible to say.

The costs of regulating acid rain are certainly clear enough. All the regulatory proposals are unquestionably expensive. But the environmental stakes are very large as well, even though they remain much more uncertain.

The fairest conclusion on the scientific side of acid rain—the benefit half of the regulatory calculus—is that for North American conditions, no fair conclusion can yet be reached. It is quite clear that acid rain has already caused some damage; it is equally clear that evidence of the damage is still confined to very small regions of this country and Canada. There can be no disputing that acid rain “might” in the future cause severe and widespread ecological harm, because this is not a disputable statement of fact or science. “Mays” and “mights” are issues of faith and ideology; scientific claims are made of the much sterner stuff of stated and defended probabilities. The scientific community is as yet unwilling to reach firm conclusions about the likelihood of the widespread ecological risks of acid rain that some have hypothesized.

Scientific uncertainty about the impact of acid rain is, however, not a reason to take sides on the proposals to regulate it. Cost-benefit balancing, it has been charged, is no more objective or neutral than the literacy tests in the old South. To give lie to that colorful claim, we must concede that certainty on the cost side of the scales does not necessarily outweigh uncertainty on the benefit side. Scientific uncertainty, like science itself, is—or at least should be—politically neutral. Ignorance supports “emissions as usual” no more (and no less) than it supports a firm change in regulatory policy. In many areas of regulation—with drugs, pesticides, food additives, nuclear power, and aircraft, for example—ignorance about

health, safety, and environmental consequences is translated by statutory presumption into a regime of strict—not lenient—regulation. There is no scientific reason why the imponderables of acid rain should, or should not, be treated any differently.

One thing, in any event, is quite clear: If we *do* conclude that a new regulatory initiative is in order, we must recognize that, from the national perspective, there are distinctly better and worse ways of implementing it. The short-term, scrubber-based remedies that have been proposed are built on the unsupportable speculation that a 10-million ton a year quick fix is both necessary and sufficient to make a difference. While some fragments of scientific analysis have been wheeled out to rationalize this particular regulatory target, they have found few adherents in the mainstream scientific community. Real, long-term solutions to acid rain lie instead in the aggressive promotion of cleaner coal and noncoal technologies. The regulatory system has a large role to play here. Over the past two decades, environmentally regressive regulatory pressures have driven utilities inexorably toward an all-coal, old-technology electric economy. These pressures should be relieved. Regulators will have to learn to do less, not more, with regard to those technologies that hold out the best promise for environmental progress.

So where *should* one stand on acid rain? It is still largely a matter of faith. Recall that the *I Ching* believer draws yarrow straws to determine the yin-yang hexagrams that will control his life and demeanor. The science of the process is certainly important, and oriental sages have spent much time and effort analyzing the sixty-four arcane patterns that the yarrow straws can combine to create. But because the science itself is more than a little cloudy, the faith of the drawer also plays a crucial role in the exercise. And so it still is with acid rain. ■

Selected References

- Electric Power Research Institute, “Acid Rain Research: A Special Report,” *E.P.R.I. Journal*, November 1983.
- National Academy of Sciences, *Acid Deposition: Atmospheric Processes in Eastern North America* (1983).
- U.S. Congress, Office of Technology Assessment, *Acid Rain and Transported Air Pollutants: Implications for Public Policy*, June 1984.

Readings

of particular interest

The State as Propagandist

When Government Speaks: Politics, Law, and Government Expression in America by Mark G. Yudof (Berkeley: University of California Press, 1983), 323 pp.

According to a popular legal view, the First Amendment creates a "system of freedom of expression" that rests on the ideal of self-controlled citizens making informed policy choices. But what if the government itself, with its vast resources, speaks loudly enough to influence the voters? In this book Mark G. Yudof, professor of law at the University of Texas, addresses the legal status of government-as-communicator.

Yudof observes that governments at all levels have become major players on the battleground of ideas. Perhaps the most important persuasive role they play is in the public schools, but governments also publish books, magazines, and pamphlets, produce films, carry on and publicize research, and pay private grantees to do all these things. The federal government has become one of the largest advertisers, with messages on subjects ranging from toy safety to military recruitment. Government can also take advantage of its role as prime newsmaker to spread, leak, or falsify information favorable to its case; equally important, it can withhold embarrassing information.

The inherent risk, of course, is that government will use its sway over public opinion to engineer a "false consensus" for its favored policies. That, Yudof says, would short-circuit the process by which democratic governments are supposed to respond to the will of the majority.

In totalitarian countries, this manipulation of public opinion is a matter of high policy. Such governments pioneered the use of new forms of mass communications during this century to reach every household with their mes-

sages. Yudof believes the United States has avoided the worst excesses of this sort, although it is not without blotches on its record. The Creel Committee, which President Woodrow Wilson established during World War I to publicize the atrocities of the enemy and encourage national unity, "subsidized the production of books, produced films and slides, authored 'canned' editorials, and even had a staff that drew political cartoons." The committee enrolled 75,000 speakers to relay its messages in movie theaters around the country. During World War II, the Office of War Information pursued many of the same objectives, but did so using what the author believes to be less sweeping and questionable tactics.

The line between indoctrination and education can be hard to draw. Much of the government's communication activity, the author notes, does not seem to be aimed at changing citizens' policy views; it is merely incidental to other government functions. For instance, consumer agencies may use "education" campaigns as a substitute for coercive regulation. Moreover, the government is uniquely situated to provide citizens with information about its own activities.

A number of other factors, in Yudof's view, combine to limit the danger that government speech will turn into propaganda—at least in this country. For one thing, the division of powers between different levels of government and between Congress and the executive branch makes it less likely that there will be a concerted effort to spread the same message. Also, high-ranking government officials often delegate communications functions to their subordinates, which can accomplish a similar sort of decentralization. Perhaps most important, the author says, there has been a general tradition of government restraint on the issue in this country.

The courts, however, are being asked to resolve a growing number of cases that argu-

ably fall into the government-speech category, including school-newspaper, public broadcasting, and election-finance cases. Yudof believes that courts are ill-suited to draw the line between the uses and abuses of government communication. Nonetheless, "concerns about limits on government speech are clearly among the factors judges may legitimately consider in deciding hard cases."

The author's preferred technique for doing this is for judges to take a hard look at whether legislative bodies have really authorized an instance of executive-branch speech. If the answer is no, the court can strike down the communication as *ultra vires*, that is, beyond legally authorized power. Courts have frequently invoked this doctrine to restrain state and local governments from lobbying for or against pending referendum issues. The advantage of this technique, Yudof says, is that it drops the question back in the lap of the legislature—and thus limits the danger that an "imperial judiciary" will frustrate democratic choice.

A Squeeze on Coal Leasing

The Making of Federal Coal Policy by Robert H. Nelson (Durham, N.C.: Duke University Press, 1983), 263 pp.

About a third of the known coal in the United States is located on land owned by the federal government, the great bulk of it in the West. This coal, like privately owned coal in the West, has been brought into production only relatively recently. Western coal production—non-federal and federal combined—has risen from just 5 percent of U.S. production in 1967 to 36 percent today. Wyoming is now the third-ranking coal-producing state in the United States, trailing only Kentucky and West Virginia.

As coal production has shifted westward, however, it has run into strong political resistance. In 1977 environmental groups and eastern coal interests convinced Congress to enact amendments to the Clean Air Act that discourage utilities from burning "clean" (low-sulfur) coal, which is the kind of coal mined in the West. The main target of opposition, however, has been the process of leasing coal on federal land to private operators. Although op-

ponents have not been able to block the growth of federal coal *production*, they have largely succeeded in halting new federal coal *leasing* for over a decade—as Interior Department economist Robert Nelson recounts in this book.

Until around 1970, federal leasing policies aroused little controversy, and most coal now being mined on federal land comes from tracts that were leased before then. By that year, 17 billion tons of coal reserves had been leased, a backlog amounting to more than twenty-five years of U.S. production. The Interior Department suspended further leasing in 1971, on the grounds that little of the leased coal was being developed. This suspension was to grow into a ten-year moratorium on new leasing.

The enactment of the National Environmental Policy Act of 1969 enmeshed the department's resource management programs in legal complications. The act required that the government complete an adequate environmental impact statement (EIS) before taking any major action that might affect environmental values. "Public-interest" lawyers soon found they could delay a controversial project for years simply by challenging as many details of the EIS as possible. Judges began holding agencies to ever more intensive levels of scrutiny. "'Telephone-book' EISs became commonplace as Interior agencies sought to cover every conceivable subject that might cause an EIS to be rejected by a court." This strategy often failed. Nelson writes that "for a couple of years in the late 1970s the Interior coal, rangeland and timber management programs—a major part of the Department's overall responsibilities—were operating under court orders imposing significant management directions."

A 1976 Supreme Court decision (in *Sierra Club v. Morton*) curbed the trend toward more EIS scrutiny. But other avenues remained open. After the Interior Department proposed to resume leasing in 1975, environmentalists again went to court to block its proposed program. They objected to provisions that would have allowed market forces to determine the rate and location of coal development. In the first place, they said, Interior had not proved that the new coal was really needed. After all, many tracts leased in the 1960s were still undeveloped (although Interior pointed out that these tracts were often located in faraway areas and that coal transport costs are high). Second, they

said that Interior had not fully accounted for the impact its leasing program might have. The only way to do this, they said, would be to abandon its open-ended leasing scheme and instead specify targets in advance for where, when, and how much coal would be mined—and not only on public land, but nearby private land as well. (Even when the federal government does not own the land, it tends to control the development of western coal. Developers operating on private land often need to develop their coal jointly with the intermingled federal coal, and frequently they also need federal permission for transport rights-of-way, water access, and other preconditions for development.)

A federal judge agreed with the plaintiffs and blocked Interior from resuming leasing. Rather than appeal the decision, the Carter administration decided to try to design a new leasing program that would be acceptable to the court and the environmentalists, because it would embody the central planning approach favored by those parties. Under the Carter program, the Department of Energy would calculate presumed national needs, allocate coal production goals to each region based on these targets, and finally set regional coal leasing targets to achieve the regional production goals. This is the system that was finally put into effect.

But this scheme has been unable to cope with rapidly changing market conditions, Nelson asserts; the production goals have become discredited or outdated almost as soon as they have been announced. For example, the Carter program was adopted in June 1979, when the time seemed ripe to resume leasing since a boom in energy markets was about to begin. But the process of land use and environmental review held up leasing for more than two years, and the first lease sale in the most important coal area was not held until April 1982—by which time energy markets were rapidly weakening. Not surprisingly, the federal government got much less money than it had expected, and critics charged that the program was a “give-away.” Congress imposed another moratorium on federal coal leasing in 1983, which expired recently; leasing has not been resumed, however. (See “The Coal Leasing Scandals,” *Regulation*, March/April 1984.)

The saving factor, from the point of view of coal consumers, has been that coal production

has continued to grow rapidly on the tracts that were leased earlier. By 1983, however, the inventory of leased tracts available for opening new mines had been significantly depleted. What is ironic, Nelson says, is that a resumption of federal leasing might well benefit the environment. The predominant form of mining in the East is underground mining, which is both dirty and dangerous to workers and local residents. The alternative is strip mining. But strip mining may do more damage in the East and Midwest than in the West. In Appalachia the slope of the land is normally much steeper and the seam of coal is thinner, which means that much more surface area must be displaced to get a given volume of coal; in the Midwest, prime farmland must often be torn up.

Furthermore, the low sulfur content of western coal helps reduce urban pollution and acid rain. Even after expensive scrubbing, eastern coal may still result in greater sulfur emissions than unscrubbed western coal. Finally, to the extent new leases would displace production from older western mines, the environment might also benefit; new federal leases undergo much more vigorous environmental scrutiny than the old.

Nelson says that the moratoriums have provided windfalls to a variety of groups, but have had little policy justification. In the long run, he believes that the best solution is simply for the government to sell off the highest quality and most promising deposits—and withdraw itself from the dilemmas it faces as a resource owner.

Untying Washington's Apron Strings

Regulatory Federalism: Policy, Process, Impact and Reform, Advisory Commission on Intergovernmental Relations, February 1984, 326 pp.

For more than a century Washington has been encouraging state and local governments to act in the ways it prefers by attaching strings to its grants. And throughout that period state and local officials have complained that federal requirements interfere with their ability to discharge their duties, while saddling them with new responsibilities and costs. Now a bipartisan federal commission representing all three

levels of government, the Advisory Commission on Intergovernmental Relations, has addressed many of these concerns and called for reforms in the intergovernmental regulatory system.

In the early years the federal government mostly used the "carrot" of financial subsidy rather than the "stick" of compulsory regulation to influence other levels of government. States could and did turn down grants-in-aid: Arizona's long-standing refusal to participate in Medicaid is one example. Things began to change during the late 1960s. Although grant participation was still theoretically voluntary, the amounts involved grew to the point where it became difficult for a community to say no to many programs without incurring major financial losses or depriving its citizens of needed services. At the same time, Washington began extending its controls to a much wider policy sphere. Earlier controls had often been related directly to the purposes of the program, designed to ensure that money was spent economically or for the stated purpose; the newer controls, in contrast, sought to police state behavior in such wide-ranging areas as civil rights, equal access, public participation, and environmental protection, and some were imposed with or without the acceptance of federal aid.

Mandates took a number of different forms. For instance, if a state failed to comply with one regulation, it might lose a grant in an entirely different program. These "crossover sanctions" can be highly influential: when Congress decided in 1974 that states would lose federal highway construction money unless they enacted the 55 mile speed limit, every state complied with the edict within two months.

Even more sweeping are "crosscutting" rules that are attached to all grants across the board. The classic example is Title VI of the Civil Rights Act of 1964, which stipulates that "no person shall . . . be subjected to discrimination under any program receiving federal financial assistance."

Not all federal regulation of the states goes on through grant programs. States must obey certain laws and regulations—known as "direct orders"—under the threat of civil or criminal penalties. For example, the Equal Employment Opportunity Act of 1972 requires state and local government employers to comply with the same rules against job discrimination that were imposed on private employees in 1964.

Another method of overriding state and local powers is "partial preemption." Under this method, the federal government establishes basic policies, but administrative responsibility may be delegated to the states or localities if they meet certain nationally determined standards. An early example of this regulatory technique was the Water Quality Act of 1965, which authorized the Department of Health, Education, and Welfare to apply federal water standards in any state that failed to set its own standards within one year.

The ACIR report contends that the newer forms of federal intergovernmental regulation result in a blurring of the constitutional boundaries of federal power. The Tenth Amendment, part of the Bill of Rights, provides that "the powers not delegated to the United States by the Constitution, nor prohibited by it to the States are reserved to the States respectively, or to the people"—language that suggests that some important powers must be reserved to the states. But efforts by the states and their political subdivisions to stem perceived federal encroachment by invoking the Tenth Amendment have been largely unsuccessful.

The only major recent victory for the state-sovereignty view based on Tenth Amendment claims came in 1976, when the Supreme Court declared that the states are constitutionally immune from certain federal labor regulations (in *National League of Cities v. Usery*). But the Court specified that the immunity applied only to the states' integral operations in areas of traditional government functions such as fire and police protection, sanitation, and public parks. The executive branch has construed the word "traditional" very narrowly, and the Department of Labor has managed to extend its regulations to a substantial number of state and local employees in such areas as mass transit, alcoholic beverage stores, and off-track betting corporations.

The report recommends that crossover sanctions be eliminated, charging that they breach the traditional legal conception of grants as a quasi-contractual relationship in which the obligations of both parties are spelled out clearly beforehand. It quotes the Supreme Court's recent remark in *Pennhurst State School and Hospital v. Halderman*: "Though Congress' power to legislate under the Spending Power is broad, it does not include surpris-

ing participating states with postacceptance or 'retroactive' conditions"—a remark that would describe many crossover sanctions.

How to Handle a "Contestable" Market

"Deregulation and the Theory of Contestable Markets" by Elizabeth E. Bailey and William J. Baumol, in *Yale Journal on Regulation*, vol. 1, no. 2 (1984), pp. 111-137.

For many years, regulators considered it necessary to apply entry, exit, and pricing controls to such industries as passenger airlines, trucking, banking, and railroads. Their rationale was that these markets, largely because they are subject to economies of scale, had a built-in tendency toward monopoly or at least harmful oligopoly. One of the analytical underpinnings of the deregulation of these industries, according to Elizabeth E. Bailey of Carnegie-Mellon University and William J. Baumol of Princeton and New York Universities, was the emergence of the theory of "contestable markets." This theory focuses attention not on the number of firms that currently operate in a particular market, but on the number of firms that could "contest" it and on the barriers to entry and exit that keep other companies from entering and contesting the market.

A perfectly contestable market is defined as one into which firms can enter and then, if they choose, exit without losing their investment. Such costless entry can be accomplished in several ways. In some industries, the equipment needed to operate can be quickly and easily bought and sold. In others, new entrants can arrange contracts in advance with their future customers to ensure profitability. The ease and costlessness of exit are important in convincing a potential entrant that it will incur risks no greater than those of a firm already in the market.

The authors' analysis indicates that a perfectly contestable market, because of the constant threat of entry, should have many of the qualities usually ascribed to "perfect competition." In particular, incumbent firms in such a market should not earn "excess" profits, and should not find it profitable to adopt "preda-

tory" pricing strategies (pricing below marginal or incremental costs). Moreover, the firms and the industries of which they are a part should operate with maximal efficiency. What is particularly important is that these happy results obtain even if the industry or market consists of only one or a few big firms, rather than the infinite number of tiny firms associated with "perfect competition."

Contestable-market theory is important for deregulatory policy, the authors say, both in identifying the areas in which deregulation will serve the public interest and in showing how the performance of both regulated and deregulated firms can be improved. Where a market is highly contestable it is difficult to justify regulation, they argue, and where it is not highly contestable its performance can be improved by increasing contestability, that is, by facilitating entry and exit.

Using this standard, they evaluate some of the deregulatory moves that have recently occurred. Such industries as aviation, trucking, and buses were prime candidates for deregulation on the contestability criterion, since the capital equipment used by such companies is the ultimate in mobility (Alfred Kahn has called airplanes "marginal costs with wings"). If, for example, a single barge line operating in one branch of a network of waterways attempts to overcharge its customers and thus earn monopoly profits, one can expect that barge lines from elsewhere on the network will quickly invade its territory, undercutting the incumbent's business and profits. Similar observations apply to other transportation industries with highly mobile capital.

Thus, in the authors' view, it was entirely appropriate that such industries were selected as the target of deregulation. They believe it was also appropriate that railroading, where exit and entry are not nearly so simple, be deregulated only partially, and that portions of rail traffic not subject to strong competition (perhaps from other modes) continue to receive regulatory attention. This is the pattern that has in fact emerged.

Study of the experience with airline deregulation so far indicates that the industry has not yet settled into the sort of equilibrium one would expect in an almost perfectly contestable market. Profits have, for example, been higher along routes served by less than four

carriers than on more crowded routes, and the airlines have employed the sorts of competitive techniques one might expect of oligopolists in a less contestable market. But the authors say that may be because fluctuations in general business conditions along with other sharp changes (including changes in fuel prices) have prevented anything like an equilibrium from emerging in recent years. Moreover, airports, unlike airplanes, are not a mobile form of capital, and the officials who ultimately control the distribution among airlines of scarce landing slots at busy airports have not always been eager to foster competition. Contestability analysis suggests, the authors say, that the public interest would be better served if the methods for assigning those slots were drastically revised—and if authorities in general took more care not to erect artificial barriers to entry.

A Simulation of Seizures

“A Theory of Expropriation and Deviations from Perfect Capital Mobility” by Jonathan Eaton and Mark Gersovitz, in *The Economic Journal*, vol. 94 (March 1984), pp. 16-40.

Economic theory predicts that, in a well-functioning world economy, capital should earn the same marginal return in each country. If there are unused opportunities to earn above-normal returns in one country, capital should flow in from another in the form of loans or investments.

Obviously, the world economy is not well-functioning in this sense; the return to investment capital is not equated in different countries. A major reason is that there are impediments to perfect capital mobility. One such impediment is that investments in less developed countries risk being seized, if not in their entirety, then at least partially through such halfway measures as currency exchange controls and unpredictable increases in the host country's level of taxation. One researcher estimated that 20 percent of the value of foreign investments made in less developed countries during the period 1956-72 was expropriated without compensation.

Writers in the past have taken the phenomenon of expropriation as a given and analyzed

it using the tools of political risk analysis. In this paper, Jonathan Eaton and Mark Gersovitz of Yale University and Princeton University respectively, develop an economic model of expropriation that assumes utility-maximizing behavior on the part of host countries and investors. For simplicity, the model posits that there are three factors of production—capital, labor and managerial services (which the foreign investor may supply along with its capital). It also assumes that, of these three factors, only capital can be expropriated. Finally, it assumes that at the time the foreign investment is made, capital and managerial talent are completely free to move between countries while workers are completely immobile.

Eaton and Gersovitz develop a number of implications from this model about when and where expropriation is likely to occur, how it is likely to affect the welfare of the host country, which industry and national characteristics increase the risk of expropriation, and how producers and their home governments are likely to alter their behavior to cope with it. One of the broad conclusions that emerges is that, even if expropriation rarely happens, the mere threat of it can significantly distort the international allocation of capital.

Another implication of the model is that a government's ability to expropriate foreign investments may actually reduce its welfare. The reason is that the prospect of expropriation leads foreign investors to curtail their investments before the fact. One implication is that if a host country faces a credible penalty for expropriating foreign capital—if, for example, the home governments of foreign investors can effectively retaliate against it—it may actually be better off. In fact, the steeper the likely penalty, the better off the potential expropriator will be. The only exception occurs where the foreign investor holds a monopoly position; in that case the threat of expropriation can reduce the investor's monopoly profits and increase the host country's national income.

Furthermore, by depressing the supply of foreign investment, the threat of expropriation distorts the domestic economy of the host country in several ways. Local owners of capital may profit from the lack of foreign competition, but local workers are likely to lose. An expropriating country may also cut itself off from needed managerial talent, either because foreign man-

agers deliberately boycott known expropriators, or because the unique skills that the foreign investors brought to the domestic market are no longer available.

Lastly, the model suggests that the threat of expropriation can affect a foreign investor's choice of production technology. A host country is unlikely to expropriate a business if it would subsequently find great difficulty in attracting enough skilled managers to run the business, or gaining access to spare parts or raw materials that are required in the production process. Consequently, an investor may find it advantageous to select a means of production with inputs for which there are few substitutes, so as to increase the penalty for expropriation, even if this entails some cost in lost production in the meantime. This explains why it has been observed that different technologies are used by foreign and domestic manufacturers in the same country. The authors compare the phenomenon to that of international weapons sales, where it may be rational for suppliers to furnish equipment that is hard to operate without foreign assistance.

Public Ownership in Canada: The Case of the Acquisitive "Crown"

Crown Corporations in Canada: The Calculus of Investment Choice, edited by J. Robert S. Prichard (Toronto and Vancouver: Butterworth, 1983), 475 pp.

In Canada, unlike the United States, a significant part of industry and commerce is carried on by government-run enterprises. How has this come about? In this anthology, sponsored by the Ontario Economic Council, a group of economists, lawyers, and political scientists try to answer that question.

"The striking common feature of all traditional summaries of the rationales for public ownership is their lack of explanatory power," write M. J. Trebilcock and J. R. S. Prichard of the University of Toronto. This or that industry is said to be owned by the government because it is a natural monopoly, or an unprofitable "lemon," or produces a vital service. But governments commonly use regulatory methods short of nationalization to handle each of these

problems. Utility monopolies are franchised, lemons are subsidized, vouchers are given the poor to cover vital services, and so forth. Indeed, it is common for an industry that is publicly owned in one country, state, or province to be private in the next. So the question is: what leads a government to choose public ownership over the alternatives?

Trebilcock and Prichard observe that nationalization often occurs in cases where there are limits on substitute instruments of control. For example, since airline regulation is preempted by the federal government in Canada, the only way the provincial government of Alberta could acquire a say was to buy the local carrier.

Tax rules can also make nationalization appear preferable to regulation. Two provinces went into the electric utility business at least in part because provincial crown corporations are immune from federal income tax. The "governments of British Columbia and Quebec," the authors say, "recognized that they would be able to reduce the cost of service to their provinces' consumers by eliminating the income tax as a cost of doing business."

Another reason for public ownership is to provide an indirect way to accomplish redistributions that might be resisted if done openly. Thus, Saskatchewan established a province-wide public utility to take over private local utilities, the authors say, partly to subsidize rural users at the expense of their urban counterparts "with some lack of visibility. . . so as to minimize the likely resistance by urban consumers." Agricultural marketing boards, which are numerous and powerful in Canada, also "provide a means of accomplishing low visibility taxation." The "taxpayers" in most cases are Canadian consumers, but in export markets where Canada is a major participant, such as wheat and salt fish, foreign buyers may pick up most of the bill.

A different sort of hidden redistribution figured in Quebec's takeover of the electric-power industry. "There was a desire to deliver senior jobs in the industry for French-speaking rather than English-speaking Quebecers, but at the time it would have been politically difficult for the government to make this an explicit regulatory policy." In a later chapter, Sanford F. Borins of York University writes that a similar desire to replace Anglophones with Franco-

phones played a role in the federal nationalization of Quebec shipyards.

Thomas Borcharding of Simon Fraser University presents an extensive review of the economic literature of public choice and the theory of the firm as it relates to government enterprise. He concludes that public ownership is especially likely to arise in areas where the complexity or sensitivity of the government's service preferences precludes specification by contract or regulation. The use of public enterprise as a mode of taxation should be more common in cases where the targets are immobile. "[O]ne reason that Canada may have a greater incidence of public ownership and government enterprise, especially at the provincial level, than the U.S. is the more limited ability of disadvantaged resources to flee." In the United States, strict state liquor regulation and state liquor store systems have been constrained, especially in the crowded East, by the ease of driving across state lines. In Canada, whose geography makes it hard to smuggle liquor from province to province, every province runs a public liquor store system.

The least mobile industries of all, and thus the most easily nationalized, are those that extract natural resources or operate at fixed sites, as in the case of utilities. Where capital can flee the threat of expropriation, or where public enterprises have to compete with the goods of a world market, there may be less prospect of government intervention. Borcharding points out that in Hong Kong, where an external power has imposed a regimen of low taxes and free trade, the one factor that is expropriable is land, and "Hong Kong has had rent control and land use regulation for almost a half century."

The contours of public enterprise in Canada, as elsewhere, are not easily delineated. Most government holdings take the form of "crown corporations," but some enterprises are owned only in part by the government, and some economic activities are carried on directly by cabinet departments. Moreover, the business of some "corporations," like the National Battlefields Commission and the Blue Water Bridge Authority, consists of rather traditional government services.

At the federal level, according to John W. Langford and Kenneth J. Huffman of the University of Victoria, there are 454 Canadian entities, with a total of 119 separate corporations

and their subsidiaries, "involved in producing an incredible number and variety of goods and services (from supporting a national hockey team and marketing Inuit [Eskimo] art to constructing nuclear reactors and building aircraft)." Sixty-one of these companies, with a total of 213 subsidiaries, are involved directly in enterprise and hold a total of \$53 billion (Canadian) in assets. Most of the subsidiaries belong to three giant firms: Petro-Canada, Canadian National Railways, and Canada Development Corporation, an industrial holding company. The majority of the crown corporations have been created or nationalized since 1960.

Aidan R. Vining and Robert Bottrell of the University of British Columbia list a total of 197 crown corporations owned by Canada's ten provinces, with \$59 billion (Canadian) in assets—more than the federal corporations hold. In Newfoundland, one of the poorest provinces, state enterprises hold assets worth a hefty \$5,456 (Canadian) per capita.

Political scientist Marsha Chandler of the University of Toronto observes in a chapter on "The Politics of Public Enterprise" that, contrary to what one might expect, left-of-center governments created only a minority of crown corporations. At the provincial level, leftist governments have led in taking over auto insurance, mining, and water supply, but right-of-center governments lead in such areas as telephones, housing, and energy. The left tends to nationalize profitable firms for "redistributive" reasons, while the right tends to launch "facilitative" state enterprises intended to help the local business climate. In the latter category, incidentally, Manitoba and several other provinces operate "computer utilities" that are based on the provincial governments' own computer operations, but that also sell data processing services to local businesses.

Two chapters offer case studies of public enterprise. John Palmer of the University of Western Ontario, John Quinn of York University, and Ray Resendes of the law firm of Osler, Hoskin and Harcourt examine a bus company owned by the Ontario government and conclude that managerial pursuit of self-interest has led to inefficiencies. Sanford Borins looks at the crown corporations established during World War II and the later decision to sell some but not all of these companies to the private sector.

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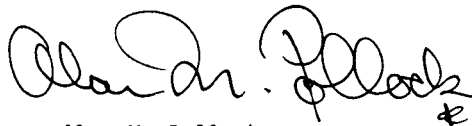
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WASHINGTON, D.C.--The Civil Aeronautics Board closed its doors today after 46 years of regulating commercial air transportation in the United States.

To all of you, a fond adieu.



Alan M. Pollock
Director of Public Affairs

*"Do not stand at my grave and weep; I am not there
I do not sleep. I am a thousand winds that blow;
I am the diamond glints on snow. I am the sunlight
on ripened grain; I am the gentle autumn's rain.
When you awaken in the morning's hush, I am the
swift uplifting rush of quiet birds in circle
flight. I am the soft stars that shine at night.
Do not stand at my grave and cry;*

I am not there. . . Goodbye."

--Unknown

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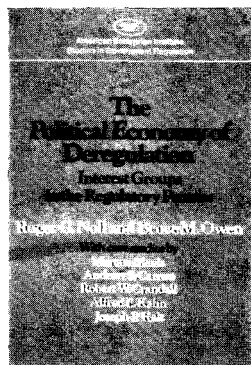
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federal expertise in the area. Taxi regulation does not heavily burden interstate commerce—as raisin regulation did when it was preserved for state regulation by the Supreme Court in 1943—or otherwise misuse a local monopoly position to the particular disadvantage of outside citizens.

Nor has the FTC so exhausted its examination of national antitrust issues that it has nothing better to do. The commission has too long neglected its assigned role of advising Congress and the President on improving the antitrust laws. It should give a higher priority to addressing the existing legislative restrictions on competition—from the Robinson-Patman Act's prohibition of price competition to the many unjustified industry exemptions from antitrust. Similarly, many of the practices of executive-branch agencies deserve scrutiny, especially competitive restrictions such as sealed bid requirements or sole source contracting exceptions (particularly by the Pentagon). These anticompetitive practices cost consumers far more in overcharges than does taxi regulation. And if for political reasons the FTC must focus on the less significant taxi issue, should it not focus its fire first on the documented overregulation of taxis in Chicago and New York? Fairness as well as sound policy argue for proceeding first against the worst abuses.

My dispute is not with Kitch's basic position—that taxi regulation is often unnecessary and should be cut back. He is clearly correct there. But these local problems do not warrant a single federal solution. The FTC should be spending its antitrust resources on anticompetitive problems more pressing and costly than possible overcharges by a few cabs in two middle-sized American cities.

Ernest Gellhorn,
School of Law,

Case Western Reserve University

EDMUND KITCH responds:

Dean Gellhorn quite properly reminds us that complete analysis of an FTC enforcement action requires us to compare it with all other possible allocations of the commission's resources. Although that is a desirable norm, my essay on the FTC's taxi initiative was written within the constraint that almost always frames actual policy making—namely, that of addressing one issue at a time.

My recommendation was that Congress respond to the Supreme Court's *Boulder* decision by continuing to leave cities open to antitrust injunctions but relieving them and their officials of liability for either treble or single damages. I am pleased that Congress basically followed this approach in the subsequently enacted Local Government Antitrust Act of 1984. I think that the availability of the FTC as a "back-up" agency in cases of serious abuse made many members of Congress more comfortable with their vote to eliminate the damage remedy.

Congress has made it clear that it wants to continue the FTC, but divining the purpose that Congress intends for it to serve is difficult, not only for FTC officials and interested scholars, but for Congress itself—as witness the frequency with which Congress has recently seemed surprised by what the FTC has done. Historically, the antitrust mission of the FTC was closely associated with the protection and preservation of small businesses, especially those participating in fragmented, multi-tiered distribution systems. In spite of the FTC's efforts, however (and the efforts of the Congress and the state legislatures), the constituency for that policy no longer exists—a victim of strong technological and economic forces. The mission itself has fallen into intellectual disrepute. . . .

Congress has ignored, however, forceful suggestions such as the one by now-Judge Richard Posner that the FTC be abolished in light of the obsolescence of its former mission. As best as I can make out, Congress now sees the FTC as a sort of roving ombudsman of competition, charged to receive complaints, search for harmful arrangements, provide Congress with information, and occasionally put a burr under someone's saddle. . . .

It is no easy task, of course, to intervene constructively in private markets, if only because of the power of markets to get things right in the first place. Gellhorn makes the same point about political systems—a point that can be extended to the national policies he criticizes. The economic policies and activities of the national government are subject to relatively intense and continuing scrutiny from a host of sophisticated institutions. A small ear at the FTC for harmful practices at the local level seems to me a reasonable use of some of the FTC's resources. ■

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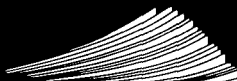


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